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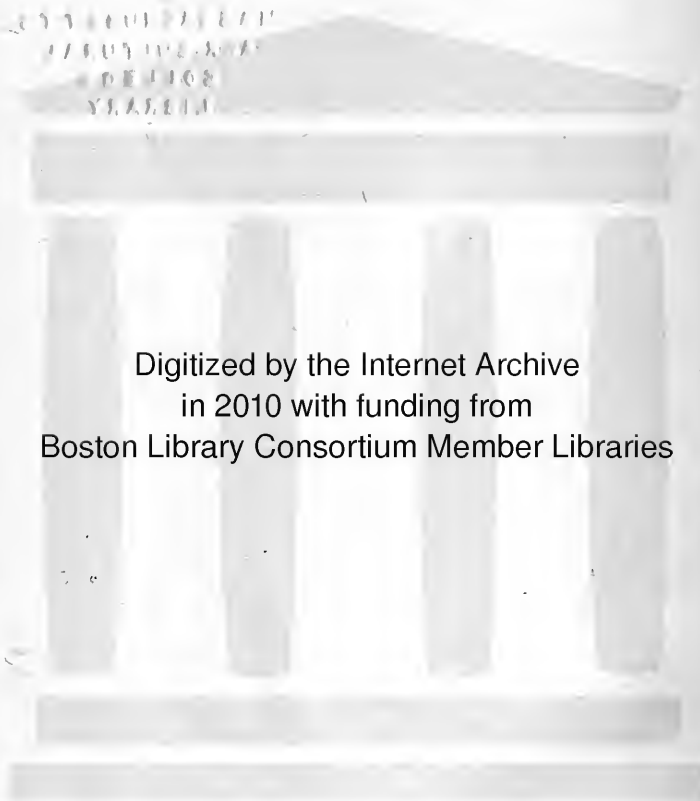
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# ANNUAL REPORT

OF THE

## BOARD OF CATTLE COMMISSIONERS

1894

OF THE

COMMONWEALTH OF MASSACHUSETTS,

IN ACCORDANCE WITH SECTION 51 OF CHAPTER 491 OF  
THE ACTS OF 1894.

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*To the Honorable Senate and House of Representatives.*

In accordance with the requirements of section 51 of chapter 491 of the Acts of the year 1894, the Board of Cattle Commissioners beg to present the following report of their work for the year 1894.

In the report which this Board presented to your honorable body in January of last year, which report was printed as House Document No. 50 of that year, we recommended, among other things, further legislation in relation to the perfecting and codifying the laws in relation to the suppression of contagious diseases among domestic animals. That report was referred to the joint committee on agriculture, and the Board was requested, by them, to prepare a draft of a bill embodying the suggestions made. Such a bill was drawn by this Board and submitted to the committee at a public meeting held by it on February 7, and was printed as House Document No. 207.

A large number of public hearings were given by the committee on agriculture upon the matters contained in the bill submitted by this Board, and upon other bills relating to similar matters submitted by other persons. All of the points suggested in the various bills were carefully gone over in public hearings, and were fully discussed by every person who desired to express any views upon the matter; and the several bills were most carefully and exhaustively examined by the committee, who reported, March 22, 1894, a bill embodying, with some slight changes, which will be hereafter referred to, the bill submitted by the commission. The reported bill was printed as House Document No. 803. This bill, after being thoroughly considered by both branches of the Legislature, became, with some slight clerical changes, a law, by receiving the approval of his Excellency the Governor on the 20th day of June, 1894, and was enacted to take effect upon its passage. The law is chapter 491 of the Acts of the year 1894.

Immediately upon the passage of the act the Board undertook the organization of the work required by the new law. It first printed a pamphlet edition of the act, and distributed it to the city and town authorities, to all the inspectors and to other interested persons throughout the Commonwealth, and copies of the same were furnished to all persons who desired them. Many copies were sent to the proper authorities of various States, in response to numerous requests.

Under section 36 of this act the Board of Cattle Commissioners was increased from three to five members, and it was felt by the then existing Board, that, in view of the importance of the work before it, no important steps should be taken until the new commissioners had been appointed. The old Board, however, undertook the preparation of drafts of letters of instruction, blank forms of returns, records and other similar matter called for under the act.

On the twenty-sixth day of June his Excellency the Governor sent to his council the name of Frederick H. Osgood of Brookline, to be a member of this commission for the term of three years, and the name of Leander F. Herrick of Millbury, to be a commissioner for the term of two years. Both of these appointments were confirmed by the governor's council on the third day of July. The newly appointed commissioners accepted their duties and took the oath of office. Dr. Osgood joined the Board at a meeting held by it on July 12, and Mr. Herrick on July 19.

At these meetings the Board prepared and approved letters of instruction to the city and town officers, the several Boards of Health and the inspectors appointed under the act, upon the duties thereby imposed upon them. At the same and subsequent meetings the Board examined and adopted the several forms of letters that had been prepared, the blank forms for the use of the inspectors in making the necessary returns and records of their doings, and all other forms incident to carrying out the provisions of the new act, copies of all of which are appended hereto.

In accordance with the requests received by this Board from several of the cities and towns, a form of application and permit for license to slaughter neat cattle was also prepared and approved. In order to secure uniformity in the keeping of

these records and the making of returns, the Board prepared and caused to be printed all of these various forms, at the expense of the Commonwealth, and furnished them without charge to all the proper authorities.

In 1876 an act was passed providing for the appointments of inspectors of provisions and animals intended for slaughter, which law was substantially embodied in chapter 58 of the Public Statutes. This was a permissive act, simply providing that the mayor and aldermen of cities and the selectmen of towns *may* annually appoint one or more persons, who *may* inspect all provisions and animals intended for slaughter. Under this act, which was taken advantage of by the cities and towns only slightly, it was found to be impossible to organize any systematic inspection of the herds of cattle in the State, and in 1892 (chapters 195 and 400) the law was so amended as to provide that the same authorities “*shall* annually in the month of April appoint one or more persons to be inspectors of provisions and of animals intended for slaughter, or kept for the production of milk.” Under this latter act, however, no penalty was provided for the failure of the cities and towns to make the appointments required by the act, and it was found necessary to again strengthen the law. Accordingly, in 1893 (chapter 306) a penalty was provided for cities and towns failing to appoint inspectors as required by law, and further, the inspectors were, by this act and for the first time, brought under the partial control of the Cattle Commissioners, by giving the Board the right to make appointments where cities or towns failed to do so, and the power to remove incompetent inspectors.

This latter act was approved May 3, 1893, and immediately after its passage this Board undertook to collect the names and addresses of the various inspectors; to instruct them in their duties, in so far as they related to the matter of the suppression of contagious diseases among the domestic animals; and to see that, so far as possible, animals intended for slaughter or kept for the production of milk were inspected as thoroughly as circumstances would permit.

The first attempt to collect the names and address of the various inspectors was begun on May 12, 1893. Up to about Oct. 15, 1893, only about one-half of the cities and towns in the Commonwealth had complied with this requirement; so that

upon Oct. 27, 1893, the Board issued a further order in relation to the matter, a copy of which may be found in the report of last year (House Document No. 50). At the time the report of this commission was made, last year, two hundred and seventy-nine cities and towns had appointed inspectors in accordance with the law, and seventy-three had failed to report.

From this small beginning, and in the face of many discouragements, the organization of this corps of inspectors has been developed, until now all but four of the cities and towns have made the necessary appointments. Up to the passage of the law of last year the interest among the inspectors in their work was far from uniform; since the passage of that act considerable interest in the work has been manifested by them and by most of the cities and towns throughout the State, — so much so that it was determined to hold a convention, at which all of the inspectors might meet with the commission and with each other, in order that they all might have a better understanding of the work which was being done throughout the State.

The commission accordingly called a convention, which was held at Worcester on Thursday, the twenty-fifth day of October last past. This convention was attended by two hundred and ten inspectors, representing one hundred and fifty-three cities and towns. In addition to these inspectors and the commission, there were present the secretary of the State Board of Agriculture; several members of the last Legislature; the Hon. J. H. Walker, member of Congress from Worcester; representatives of the sanitary live stock boards of various States; the veterinary adviser of the Dominion of Canada, Prof. D. McEachran of Montreal; veterinarians and many others interested in the work, — a number reaching to fully three hundred in all. Hon. Henry A. Marsh, mayor of the city of Worcester, extended a cordial welcome to all of those who were present. The meeting, although the first of its kind ever held in this State, was very successful and profitable to the commission, and, it is hoped, to the others who were present. A report of the proceedings is appended hereto.

Shortly before the close of the last session of the Legislature the commission received a letter from the State Board of Live Stock Commissioners of Illinois, requesting the Commonwealth to send representatives to a convention proposed to be held at

Washington, D. C., during the month of June, which was referred to his Excellency the Governor, who instructed the secretary to co-operate with the other boards in holding such a meeting. This convention was held on June 19, 20 and 21, at the Department of Agriculture in Washington; and Hon. Levi Stockbridge, chairman, and Dr. Charles P. Lyman, secretary, of this Board, were directed by his Excellency to attend the convention on behalf of this Commonwealth. Many interesting subjects were discussed; among them tuberculosis, glanders, and the matter of obtaining uniform State laws for the suppression and prevention of the spread of contagious and infectious diseases among domestic animals. The papers on the subjects and the discussions following them covered, in a very interesting and instructive way, many of the questions in which this State is now deeply interested. Among them there was a consideration of the best methods of obtaining co-operative action in the several States between which an interchange of domestic animals is naturally and more or less constantly taking place; the best methods of handling and suppressing outbreaks of glanders among horses; and, incidental to the matter of stamping out contagious diseases, a consideration of the subject of indemnifying the owners of animals that are seized and destroyed for the public good.

On the subject of tuberculosis two valuable papers were presented; that of J. H. Kellogg, M.D., of Battle Creek, Mich., is a very exhaustive consideration of the subject from a sanitary stand-point, discussing as it does, among other things, the existence and extent of disease among mankind and among neat cattle, the activity of its contagious principle and the methods by which it is spread. The second paper on the subject, by M. R. Trumbower, V. S., of the Sanitary Live Stock Board of Illinois, is an interesting and instructive discussion. The remarks of Dr. D. E. Salmon, chief of the Bureau of Animal Industry, which followed these papers, are especially worthy of attention. All of these papers and remarks contain a fund of valuable information upon this subject. A copy of the proceedings of the convention is appended to this report.

Prior to September 1 of this year all inspections of animals suspected of being tuberculous were conducted by this Board upon the basis of a physical examination, and the results had

been far from satisfactory, — so much so, indeed, as to convince them of the entire futility, and danger even, of relying further upon this method for determining the presence of that disease in neat cattle.

While the Board, as a board, had been proceeding in this way, Drs. Lyman and Osgood of the Board had been making a long series of experiments with tuberculin, for the detection of tuberculosis among this class of animals; and upon September 20 Dr. Osgood presented the result of these investigations to the Board. In view of this reported experience, the Board were satisfied that the use of tuberculin was a reliable method of detecting the disease among neat cattle; and that the time had arrived at which a more scientific method should be used, both for the protection of the owners of cattle and the public, in properly determining the existence of this disease; and that a plan should be adopted, if possible, for the substitution of the tuberculin test in place of the physical examination, which had been heretofore uniformly used. In order to do this, it was felt that not only should animals as reported by the several inspectors be tested with tuberculin, but that systematic regulations should be promulgated and enforced throughout the State for quarantining animals until tested; for regulating the importation of animals from without the State; for providing a market, as at Watertown and Brighton, at which tested animals might be purchased by those desiring to have them; and for the systematic examination of all neat cattle throughout the State. After a most thorough and careful consideration of the matter at this meeting, Commissioner Osgood was requested by the Board to formulate a definite plan for the accomplishment of these purposes. The report of this commissioner was submitted to a full meeting of the Board, held on October 4, and was adopted by a unanimous vote. The system then adopted embraced: —

*First.* — The test, with tuberculin, of all suspected cases reported by the local inspectors.

*Second.* — The regulation of the importation of all neat stock into this Commonwealth from all points without its limits.

*Third.* — The quarantining of all such imported animals until tested with tuberculin, and either condemned or certified as sound.



*Fourth.* — The establishment of regular quarantine stations, at which all animals brought within the limits of the Commonwealth should be delivered in quarantine.

*Fifth.* — The forbidding of the importation of all neat stock within the limits of this Commonwealth, unless delivered at these points except upon written permit to the Board.

*Sixth.* — The branding, in a distinct way, of all animals that had successfully passed the tuberculin test.

*Seventh.* — A systematic examination, by the use of tuberculin, of all animals within the State, beginning with the counties of Nantucket, Dukes and Barnstable.

The first announcement of this policy was made at the convention held at Worcester, the 25th of October; and subsequently the Board, upon November 20, issued orders and regulations covering the same, to take effect upon the twenty-fifth day of November, a copy of which orders will be found appended hereto.

Prior to the adoption of the tuberculin test by the Board, as the best known method of examining animals suspected of being affected with tuberculosis, the work of the commissioners in relation to the examination of cattle consisted in keeping a corps of inspectors throughout the State in as perfect a condition as circumstances would permit; instructing them regarding the interpretation and enforcement of the law, as far as it applied to their duties in inspecting animals and slaughter houses, or otherwise in connection with the commission; in directing the times at which the examinations of herds should be made; and in keeping proper records of the results of the work done by them. Besides this supervisory work, in all cases of animals reported by the several inspectors, or by other persons, as suspected of being affected with a contagious disease, the several members of the Board made a personal examination of the suspected animals so reported, reliance always being placed upon physical examination; and, as a result of such examination, each animal was either condemned as diseased or freed from quarantine and certified as sound. In addition to this, the Board, as far as possible, inquired into such breaches of the law as came to their attention, and took such steps as were necessary or practical to prevent their occurrence in the future.

Upon the adoption of the orders, which took effect on the 25th of November, a very great addition was made to the work of the commission. These duties may be subdivided into four distinct heads:—

*First.*—The attending to the inspection of all animals reported by the local inspectors as suspected, and the testing by tuberculin of all such as are reported to be tuberculous.

*Second.*—The quarantining of all neat cattle which are delivered at the quarantine stations at Watertown, Brighton or Somerville, and the testing with tuberculin of such of them as are not to be immediately slaughtered at the Brighton Abattoir, or which are not to be immediately transported to points without the limits of this Commonwealth, which calls for a weekly service extending over three days.

*Third.*—The systematic examination with tuberculin of all herds within the State, which includes the test by tuberculin, the destruction of all deceased animals, the disinfecting of the contaminated premises and the branding of all animals found free from disease.

*Fourth.*—The granting of permits for the transportation of animals from without the limits of this Commonwealth to various points within the State, where they are immediately quarantined, and the testing of the same with tuberculin in the same manner as already described.

The detail of this work and its result is fully described in the latter portion of this report.

On the first day of October of this year the term of office of Hon. Levi Stockbridge, who had been the chairman of this commission for many years, expired. At a meeting of the Board on September 25, Professor Stockbridge announced that he had tendered to his Excellency the Governor his resignation as commissioner; and his long service on the commission ended with the appointment of Charles A. Dennen of Pepperell to be a commissioner for the term of three years.

The Board desire to express their appreciation of the careful, conscientious work which Professor Stockbridge has done, both actively in the field and by his influence in shaping legislation for the suppression of contagious diseases among the domesticated animals in this State. Professor Stockbridge was first appointed cattle commissioner by Governor Bullock, in August,

1868, and, through all the changes that have taken place in this commission, he has served continuously as chairman of the Board from that time until his resignation was accepted. By the withdrawal of Professor Stockbridge the commission feel that they have lost the services of a valuable man, — on account of his great experience in the work which the commission is doing, on account of his faithful attendance to his duties, on account of his genial disposition, and on account of the great confidence which he inspired in the agricultural community and in all others with whom he came in contact in his work.

Upon the eighteenth day of October his Excellency the Governor sent to the council the name of Charles A. Dennen of Pepperell, to be a commissioner for the term of three years. His appointment was confirmed by the council on the twenty-fifth day of October, and immediately thereafter Mr. Dennen took the oath of office and entered upon the duties of the office. On the same day the resignation of Professor Stockbridge was accepted Commissioner Dennen was first present at a meeting of the Board held on October 30, and at this meeting the vacant chairmanship was filled by the unanimous election thereto of Dr. Frederick H. Osgood.

Taking up now the several classes of work referred to heretofore, we submit here, first, a report upon the work of the local inspectors throughout the State and the work of the commission in connection with the same.

Under section 1 of chapter 491 of the year 1894, it is provided that the mayor and aldermen of cities and the selectmen of towns shall within thirty days after the passage of this act, and thereafter annually in the month of March, appoint one or more persons to be inspectors of animals and provisions. These inspectors are selected by the town and city officials, and receive from the city or town of their appointment such compensation as may be by them decided upon. Under the provisions of this section there have been appointed, by three hundred and forty-nine cities and towns, three hundred and ninety-four inspectors. While these inspectors are required to carry out and enforce all orders and regulations of the Board of Cattle Commissioners or any of its members, they are not in any sense the appointees of this Board, nor is the Board generally consulted in the matter of their selection. The power is given to this Board to appoint

such inspectors when the cities or towns fail to make the appointment; and the Board is further given the power to remove any inspector when, in its opinion, the inspector neglects or refuses to be sworn, or properly perform the duty of his office, and in such case the Board is given the right to appoint another inspector in his place. While this power is vested in the Board, it has not as yet been exercised, and therefore the inspectors throughout the State to-day are city or town appointees.

In 1894 it was demanded for the first time that the general occupation of the inspectors should be forwarded to the Board, together with the name and address in each case; and it may not be without interest in this connection to give these. So far as they have been received, they are as follows:—

Farmers, . . . . .	136	Retired sea captain, . . . . .	1
Veterinary surgeons, . . . . .	58	Meat peddler, . . . . .	1
Cattle dealers, . . . . .	10	Cabinet maker, . . . . .	1
Butchers, . . . . .	8	Market gardener, . . . . .	1
Doctors of medicine, . . . . .	20	Insurance agent, . . . . .	1
Health officers, . . . . .	4	Carpenter, . . . . .	1
Grocers, . . . . .	3	Stone mason, . . . . .	1
Provision dealers, . . . . .	2	Street commissioner, . . . . .	1
Traders, . . . . .	2	Electrician, . . . . .	1
Painters, . . . . .	2	Lumber dealer, . . . . .	1
Chief of police, . . . . .	2	Truckman, . . . . .	1
Cow doctors, . . . . .	2	No occupation, . . . . .	1
Blacksmiths, . . . . .	2	Grain dealer, . . . . .	1
Keeper, . . . . .	1		
Occupation not given, . . . . .	124	Total, . . . . .	394
Wood and coal dealers, . . . . .	5		

The work of the inspectors in connection with the Board of Cattle Commissioners may be divided into two classes: first, the examination of animals for the detection of contagious disease; and, second, the inspection of carcasses of animals which have been slaughtered under the provisions of the law. In regard to the examination of animals throughout the State, their work may be again divided into two classes,—that in relation to neat cattle and that in relation to other animals. It is the duty of the inspectors, under the act, to make “regular and thorough inspection of all neat cattle within the limits of their several cities and towns.” These inspections are made in such a manner and at such times as the commission designates. In the circular letter of “Instruction to Inspectors,” which was

issued by the commission soon after the passage of the present law, it is ordered “that two thorough examinations of all neat cattle be made in each year,—one during October, or as soon as possible after the animals come in from pasture; the other during March, or just before the animals are turned to pasture; they are also ordered and advised to make inspections of any herds, or of any animals, within their district, whenever any emergency arises, or whenever in their judgment it is better for them to do so.” Under this order the inspectors throughout the State made examinations from time to time of suspected animals up to the time of the regular fall inspection. This was begun about the 1st of October, and up to December 15, at which time the returns were required to be sent in, reports had been received from 243 towns, covering the examination of 131,968 animals.\*

In addition to this regular work, a new duty was imposed upon the inspectors under the law of 1894, requiring them to make, from time to time, inspections of all other domestic animals within the limits of their several cities and towns whenever they have knowledge or reason to suspect that such animals are, or have been, exposed to any contagious disease. Of these inspections the commission receive no returns except in cases where the animal has been quarantined as suspicious. Upon making all inspections of neat cattle, it is the duty of the inspector, if in his opinion the animal is free from contagious disease, to deliver to the owner or person in charge a certificate of its wholesome condition. Copies of the form of this certificate will be found appended hereto. Under this provision, up to December 15, there had been issued by such inspectors certificates of soundness of 21,273 herds, all of the certificates, of course, being based upon the physical examination by the inspector. Wherever an inspector suspects, or has reason to believe, that any animal inspected by him is affected with a contagious disease, it is made his duty to immediately quarantine the suspected animal, he being given the power to do so. This power was first given under the law of 1894; prior to that, all quarantines had to be imposed either by the Cattle Commission or some of its members, or by the local boards of health. This

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\* The total number of neat cattle assessed in the State in 1894 is: cows, 182,477; other than cows, 41,059; total, 223,536.

machinery was found cumbersome, in that it required local boards to act as a board; and also practically defective, because the local authorities treated the inspector as the agent of the Board, whereas he was an independent officer; and consequently most quarantines imposed were found to be imperfect. The change in the law of last year has been found to be very beneficial in correcting this evil.

The method of imposing quarantines was also changed by the law of 1894, which required, for the first time, that the quarantine should be in writing; that a copy of the order should be delivered to the owner or person in charge, or left at his last and usual place of abode, or that the same should be posted upon the premises; thus leaving no room for doubt in the mind of the owner as to whether or not his animal had been placed in quarantine. Whenever the inspector imposes a quarantine, it is his duty to immediately send an exact copy of the order to the Board of Cattle Commissioners, and to notify the local board of health, at the same time, of the establishment of the quarantine; this gives a double check upon the work of the inspector; and this copy returned to the commission, with the statement upon the reverse side, by the inspector, showing the method of imposing the quarantine, is in itself good evidence in any tribunal that a quarantine had been properly imposed. In this way the work of quarantining has been thoroughly systematized. Under this power, prior to December 15, the inspectors have imposed quarantines and made returns of the same to the Board as follows: neat cattle, 2,584; horses, 230; swine, 25 herds.

While the inspectors are given the power to impose quarantines, they are not given the power to remove them; all such quarantines can only be removed by order of the local boards of health or by the cattle commissioners. In addition to the power given to the inspectors to impose quarantine, the local boards of health have similar powers. The boards of health have not generally been called upon to exercise this power except in a few instances where horses suspected of being glandered were concerned.

Upon the receipt by this Board of a notice of quarantine upon any animal, it becomes the duty of the commission to act in the matter. In view of the great mass of work coming under

this head, the Board soon found that the matter of inspections, by them, of suspected animals, could not be efficiently performed unless some regular system was adopted; they were therefore obliged to establish the rule that the commissioners should only act in the matter of inspecting suspected cattle where the animal had been quarantined by the proper authority. This rule was arrived at not only because of the large number of cases which called for their personal attention, but also from the fact that, unless the animal was securely quarantined, they were liable, upon arriving at the place where it had been located, to find that it had been removed or that it was otherwise beyond their reach, — this has occurred many times after travelling long distances.

Prior to October 4, the existence of the contagious diseases in these animals was determined by the commission upon a physical examination; and, as before stated, in the cases of tuberculosis the results were found to be exceedingly unsatisfactory both to the commission and to the owners of the animals. The symptoms were so unevenly shown that animals which were apparently sound were released, and in some cases afterwards found to be affected with the disease; in others, animals which appeared to have the symptoms of the disease were, after slaughter, and upon post-mortem examination, found to be free from tuberculosis, but affected with bronchitis, pneumonia or other non-contagious disorder; and in this way throughout the State a large number of mistakes occurred, notwithstanding the fact that the greatest care was taken to prevent them. In fact, we were simply repeating the experiences of all other countries that had tried to do anything towards the removal of tuberculous animals from among its herds, and we felt that the ultimate result was sure to be extremely unsatisfactory to all parties concerned; and consequently, as has already been stated in this report, the Board determined to adopt the uniform rule of subjecting all animals suspected of being affected with tuberculosis to the tuberculin test.

The Board further felt, in view of the fact that the law passed last year provided for the payment of compensation to the owners of animals so slaughtered, and placed in the hands of the commission a considerable sum to be applied for this purpose, that, as representing the interests of the Commonwealth as well

as those of the farmers and the people at large, it was, while pursuing this method, needlessly frittering away the State's money; because, while the State could, in the opinion of the Board, properly and justly expend large sums of money to *eradicate* this disease, any method based upon physical examination, as then pursued by the Board, would only result in the expenditure of a considerable sum without obtaining a result which was commensurate; for, while the commissioners might successfully pick out here and there throughout the various herds in the State animals where the disease was well marked, there were liable to be left in the same herds a large number of incipient cases, not capable of detection by ordinary means, and that therefore no efficient check to its spread would be made.

The Board, as has already been stated, determined, after a most careful and exhaustive consideration of the subject, and relying upon actual tests, to do away entirely with the physical examination, as a method of determining in the last instance the existence of the disease, and to substitute in its place the tuberculin test in all cases of neat cattle suspected of being affected with tuberculosis. Under this branch of the work no animal is so tested except where it has already been reported to the Board by a local inspector as tuberculous, and quarantined as such, — the inspector, of course, relying upon physical examination.

The other branch of the work of inspectors, in connection with this Board, relates to the examination, at the time of slaughter, of the carcasses of all neat cattle, including calves, that are butchered throughout the State. In the report which we submitted to your honorable body in January, 1894, we called your attention to the fact that tuberculous cattle were being slaughtered in different parts of the State by unprincipled butchers, and that the meat from them was being sold to unsuspecting persons for food. We then also stated that in our opinion this was one serious obstacle to the eradication of the disease, for controlling which no adequate provision of law then existed. We consequently recommended that some legislation be framed to control the matter of the slaughter of cattle, and providing for uniform inspection of the carcasses. In consequence of this, sections 17–23 inclusive of the Act of 1894 were passed, which provided briefly as follows: that all persons en-



gaged in slaughtering neat cattle should apply to the mayor and alderman or to the selectmen for a license to conduct the business, which should designate the class of animals to be killed, the time at which the animals were to be slaughtered and certain other facts relating to the business. Upon receipt of this application, a proper license may be issued by the city and town authorities. It is then made the duty of the local inspectors to be present at the time of the slaughter of all neat cattle at such establishments, and to examine at that time the carcasses of all such animals. If the carcass is found to be free from disease, it is allowed to be sold; otherwise it is seized by the inspector and destroyed. In addition to this, provision is made for the inspection of all neat cattle slaughtered by persons not regularly engaged in the business, it being made their duty to cause the carcass of such animals to be inspected by one of the regular inspectors at the time of slaughter, "unless said animal has been duly inspected, under the provisions of this act, within six months prior to such slaughter, and a certificate of health has been delivered to the owner or person in charge thereof." The inspection herein referred to is the inspection by the local inspectors, which, as before stated, is based upon the physical examination, and under this provision more or less tuberculous meat will find its way into the market.

Under the provisions for licensing slaughter houses, there is nothing requiring that cities and towns shall make any return to the Board of Cattle Commissioners concerning the number of licenses issued; and the Board would recommend that the act be so amended as to require that each city and town shall, on or before the first day of June in each year, make a return to the Board of Cattle Commissioners, in such form as the Board shall provide, giving the names and addresses of the proprietor or proprietors of every slaughter house, canning, salting, smoking or rendering establishments, or of every establishment used in the manufacture of sausages or chopped meat of any kind, which are engaged in the slaughtering of neat cattle; and the names and addresses of all of such as have made application to slaughter neat cattle, and the names of all of those to whom licenses have been issued.

In General Order No. 1, issued by the Board this year, all

inspectors were directed to make regular monthly returns, showing the number of animals that had been examined at the time of slaughter, the number which had been found to be free from any contagious disease, the number condemned and the causes of the condemnations. All the information which the commission now have as to which towns have complied with this section of the law is based upon the returns made by the inspectors in conformity with this order. Up to December 15 the inspectors in 164 of the towns and cities had made returns, showing that 39,072 had been examined, 236 of which were condemned as being affected with tuberculosis.

In all cases where tuberculosis was found present, so far as the commission is informed, the carcasses have been destroyed or disposed of otherwise than for food, as the law requires. As this portion of the law is entirely new, the commission has not felt that it was wise to vigorously push prosecution for breaches of its provisions, although in some cases, where offences have been flagrant, prosecutions have been successfully maintained.

This whole division of the work, coming from the local inspectors, entails upon the commission an amount of labor which has been as great, if not greater, up to the present time, than that in any other branch of their duties. The returns have to be examined and tabulated; suspicious animals visited, examined and disposed of under the law, as each occasion demands; numerous interviews must be held with inspectors and town officers, coming from all parts of the State; innumerable letters are received connected with the special work, to many of which careful answers must be given covering particular and peculiar cases; and in many other ways the efforts of this large corps of inspectors must be directed.

Before leaving the matter of the inspectors, it should be said that they are also given the power to inspect meats, fish, vegetables, fruits or provisions of all kinds throughout the limits of their city or town, and also of veal found, offered or exposed for sale within such limits. This work of the inspectors is conducted entirely in connection with their local boards of health; and, while it may form a more or less considerable portion of their work, it is not brought under the supervision of this commission, and consequently they can not make any statements as to the nature and extent of this work.

In addition to the large corps of local inspectors appointed throughout the State, the Board also has under its control a corps of agents, directly assisting them in their work of examining suspected cattle. Under section 43 of the act the Board is given the power to "appoint from time to time such officers, agents or assistants as are necessary or expedient to carry out the purposes of the act."

Prior to the adoption of the tuberculin test by the Board, this power was not exercised by the commission. As soon, however, as they determined to use this test, it was found necessary to have a corps of skilled assistants, especially drilled in the method of using tuberculin, in order that the returns upon which the Board are obliged to act should be as accurate and reliable as it is possible to make them. They have accordingly, from time to time, appointed agents and assistants for this work, until upon December 15 there were thirty-three such agents and assistants so appointed and employed by the Board, who receive, while actually engaged in the work, their expenses and a compensation varying from \$1.50 to \$5 a day.

At the time of the adoption of the tuberculin test, as the proper method of examining all animals suspected of being tuberculous, the Board were of the opinion that, while its efforts in this direction, as based upon the mere examination of animals reported by the inspectors to be tuberculous at isolated points throughout the State, would result in the destruction of actually diseased animals to a considerable extent, it would be of but little service in really cleansing the herds of the State from the disease; because the animals so examined and selected for the test were only such as appeared to show external symptoms of the disease; and also because the Board felt, from its experience with the test, that other animals, apparently healthy, were being allowed to go free and spread the contagion. Thus in the end the percentage of diseased animals would be but slightly decreased.

They were further impressed with the fact that not only were the public interested in the destruction of diseased animals, but the farmers and dairymen were equally interested in having, if possible, some means of assisting them in their purchase of cattle, so that they might be able to replace the animals destroyed with others which had successfully passed the test.

The Board, therefore, felt that the best method of protecting all parties and eradicating the disease was only to be obtained by a thorough scientific examination of all neat stock throughout the State. They therefore decided to begin a systematic examination of all animals in the State, county by county; taking proper precaution, as fast as all the animals in each county had been examined, destroyed or marked, to prevent, by quarantine regulations, the importation within its limits of animals which had not already been so examined.

In determining where they would begin this work, they took into consideration the natural conditions of the State; and, feeling that the seaboard formed of itself a practical quarantine from the importation of animals, they determined to begin with counties bordering on the sea. They first, therefore, selected Nantucket, Dukes and Barnstable. The reason which led to the selection of these counties, only, in their first order, was that they are comparatively small, contain but few animals, presumably as healthy as any in the State, and that the small appropriation would be practically exhausted by the time the examination of the cattle within these limits could be completed.

Accordingly, as a part of their general order of November 20, which is hereto appended, they issued General Order No. 5, relating solely to those counties. This order briefly quarantines all neat cattle within the counties until examined, requires that all the cattle within the limits shall be subjected to the tuberculin test, and forbids the bringing into these counties any neat stock which has not been branded by the commission as free from tuberculosis.

This order was imposed at the same time the State was quarantined, and the regular systematic examination and branding of cattle at Brighton, Watertown and Somerville was introduced. In this way, not only were these counties freed from the disease by the eradication of all sources of contagion within their limits, but at the same time the inhabitants of these counties were furnished with a market where they could be sure of purchasing animals which have successfully passed the tuberculin test. At the time of making this report the commission have completed the examination under this order of all animals in the island of Nantucket, and they are very glad to say that the result in the

island has been very satisfactory; that of six hundred and sixty-five animals examined only six have been found diseased, and this disease was found in the bodies of animals which had either been imported to Nantucket from the main land or in those that had been in cohabitation with such animals; and that, while the farmers had lost so few cattle, it has apparently resulted in a considerable increase in the value of their stock, as the cattle there are now held at prices nearly thirty-three per cent. higher than before this examination was begun.

The field work was placed in charge of Commissioner Dennen, who with a corps of eight assistants went to Nantucket, and, after conferring with the local inspector, divided the island into sections, selected for convenience, having due regard to the distribution of the cattle as far as could be ascertained. The examination of every animal on the island was then proceeded with, following minutely the detail given in this report under the head of the tuberculin test.

One of the main difficulties which has been met with by the commission is that of obtaining a sufficient number of competent men to perform the work in the field. The Board has always followed the plan of selecting only such persons as are thoroughly competent, and who have had considerable previous experience in the application of the test. It should be remembered that a carefully conducted post-mortem examination is made upon the body of every animal which is condemned and killed; and the Board are very happy to say that these examinations have demonstrated the high quality of the work performed by these agents.

The commission has heard complaints from time to time that not only were they subjecting the animals to a new and unusual test, but that they were being condemned by men of inexperience, and that the owners were suffering from the mistakes of these agents. An examination of the method pursued by the Board will show to any such persons that these complaints are without foundation. Not only is the greatest care used, as already stated, in selecting the agents to apply the test, but in no case have the agents passed upon the existence of the diseases or condemned the animal as a result of the test. These agents simply tabulate the result of their own work, and in all

cases this is examined and checked by the commission, the existence of the disease being always determined by it, and the condemnation order issued by some one of its members.

#### BRIGHTON AND WATERTOWN.

The Board, as a part of this systematic endeavor to stamp out tuberculosis in the State, has also undertaken to regulate the sale of neat stock brought within its limits, so as to insure, as far as circumstances permit, that such cattle are free from tuberculosis.

The animals which are brought into this State for sale are delivered here in two ways; a majority of them, in the opinion of the Board, are brought in by the several transportation lines, the larger proportion being delivered at the markets at Watertown and Brighton. In addition to these there are, of course, a considerable number of cattle driven into the State on the hoof, to be delivered at various points, concerning which, up to November 25, there were no records.

As far back as 1892 this Board were in receipt of frequent reports that neat stock brought to the Brighton and Watertown markets for sale within a very short time thereafter showed themselves to be tuberculous, and so, worthless for beef or dairy purposes; although it was claimed that the buyers of this stock had paid good prices, and had endeavored, as far as circumstances would permit, to ascertain their soundness before sale. The Board was requested to examine into the matter, and ascertain if it was not possible for them to establish some system for the protection of those desiring to buy such stock, so that they might be assured, as far as possible, that the stock so purchased by them in this market was free from tuberculosis. The Board, recognizing the reasonableness of this request and the importance of the work, has made every possible endeavor to assure the health of the animals sold at these markets. The matter was referred to in the report filed by this commission last year; and again the commission desire to state that they have been greatly assisted by the hearty co-operation of the Board of Health of the city of Boston and the town of Watertown.

Prior to the report of last year, both of these boards appointed a special inspector, to be at these markets and examine all cattle offered for sale thereat. In addition to this, at the request of

this Board, during the early part of the present year, the Board of Health of the city of Boston appointed an additional inspector at Brighton, to assure the prompt and thorough examination of the stock; notwithstanding which this office continued to be in receipt of complaints from buyers that the neat stock purchased at these markets was still found to be more or less tuberculous. It had been therefore pretty thoroughly demonstrated to the satisfaction of this Board by something more than two years of actual experience that the health of the stock sold thereat could not be determined to any appreciable degree by means of physical examinations.

With the adoption of the tuberculin test the Board determined to inaugurate if possible some practical method, whereby all of the cattle coming to these markets should be subjected to that test before being offered for sale. Whether or not, in view of the circumstances under which these animals have to be examined, such a result can be obtained by the tuberculin test still remains to be proved.

In connection with this use of tuberculin at these markets, it should be remembered that the test is a purely scientific method of determining the existence of the disease by measuring the reactions caused by its injection, as shown by the temperature of the animal at given periods after the inoculation.

In the case of an animal under normal conditions, where it is free from excitement, where it is only being fed at the times designated by the person applying the test, where it is allowed to drink water only under the same circumstances, — in fact, where all conditions are entirely within control of the examiner, the temperature table shows a regular and consecutive variation, which can be relied upon to determine the result. Like every other scientific test, experience shows that a manifold number of unforeseen conditions may come in to complicate the result; and it is only after a careful study of these conditions and a thorough consideration of the effect produced by them that their values can be eliminated in arriving at a satisfactory result. The whole experience of the commission with tuberculin has shown this to be true; and they have found that, while animals under a normal condition, when subjected to this test, will always show a well-defined result, upon which the existence or the non-existence of the disease can be practically demon-

strated, other animals, when subjected to abnormal conditions, will so far vary the results as to materially complicate the problem of determining the existence of the disease.

This scientific method, it must be remembered, is comparatively new; and, while it has been carefully studied in its normal aspects and under more ordinary conditions, the nature and effect of abnormal conditions cannot as yet be thoroughly tabulated. Hence it is that while in the opinion of this Board tuberculin is a reliable test under ordinary conditions, extraordinary conditions, frequently unknown to the person applying it, so far complicate the matter as to cause errors to creep in to a certain extent, which errors, in the opinion of the Board, are not due to the tuberculin, but to the unappreciable circumstances. While this agent as a test of the existence of tuberculosis has been used to a considerable extent by other scientists and boards doing the same work, under normal conditions, but little is known as to the effect upon it of the abnormal conditions met with at these markets; and the Board cannot, therefore, rely upon the researches of others, but must depend entirely upon its own experience in the field in giving to these extraneous circumstances their proper place in determining the result in any given case. There has been no field where the effect of the environment has been so much felt as in the matter of the application of this test to neat stock brought into the stock yards at Brighton and Watertown.

The cattle which are sold at these markets are not resident cattle, but are brought to it from more or less distant points; a great proportion of them coming from without the limits of the Commonwealth. As these cattle are brought there for the purpose of sale, it goes without question that they are not delivered at the market except at as near to the time of sale as circumstances will permit, the owners not desiring to incur any unavoidable expense for care and food. The commission have therefore endeavored to arrange that the quarantine shall cover the shortest possible period of time that an application of this test will permit. These cattle are collected from different localities and brought together for the first time. They have been put into crowded cars, have suffered the excitement attending an unusual journey, have probably received their food and water at irregular periods, and in every possible way have been



subjected to conditions utterly foreign to their ordinary existence. Neat stock are not mere machines, but are excitable animals, materially affected by unusual conditions. Another significant fact in relation to the cows brought to these markets is that they generally are or are about to be new milch; and it is within the knowledge of all who have had practical experience in this direction that this greatly increases their nervous sensibilities, and experiment shows that this actually has a direct effect upon their internal temperatures. Added to this is the fact that great popular interest has been shown in the matter of the tests applied at Brighton or Watertown, and that consequently at the time when these animals are being examined there is usually a large crowd of interested and curious people present, who are anxious to thoroughly understand the test and its working in the field.

Although the commission, even with its slight experience, has recognized the fact that the presence of these spectators has to a greater or less extent rendered it more difficult to obtain satisfactory results, they have felt that the public should be accorded every opportunity to witness their methods and the effect of tuberculin upon the animals subjected to the test; and they have, therefore, accorded to all persons who desired every reasonable opportunity to watch the proceedings throughout their several stages. An examination of the tests at these markets has proved to the satisfaction of the commission that all of these abnormal conditions have very materially complicated the temperature tables, as a result of which they have made a few mistakes in arriving at their conclusions.

The first test of cattle at Brighton and Watertown, under the circular of November 20, was made upon the twenty-first day of November, and has continued weekly since that date. The examinations begin about Tuesday noon and continue until Thursday evening of each week, the entire time of Commissioner Herrick being given to this work in the field upon these days, as is a portion of the time of two other commissioners. Another full day of Commissioner Herrick's time is consumed at the office in attending to the business resulting from those examinations. In addition to this, the Board employs some ten or twelve assistants in performing the tests and in the various parts of the work.

The result of the work at these markets is shown in the following table : —

*Brighton, Watertown and Somerville.*

	Nov. 21.	Nov. 28.	Dec 5.	Dec. 12.	Dec. 19.	Dec. 26.
Number examined, .	270	187	194	308	303	170
Number condemned, .	26	25	16	18	14	11
Number tuberculous, .	23	18	8	17	13	10
Number not diseased, .	3	7	8	1	1	1
Number held for re-test, .	1	1	3	5	19	10

An examination of this table, covering the first six weeks of the work and bringing the matter up to the time of writing this report, will show that about 6.21 per cent. of all animals offered for sale at the markets have been shown to be tuberculous. It will also be seen that in judging of the healthy condition of 1,432 animals 21 mistakes have been made, as proved by post-mortem examinations; and that fewer errors of this sort occurred in the last three weeks than during the earlier experiences. For themselves, the commissioners feel that, in view of the facts that have been given regarding the conditions under which the examinations have been made, these results are not by any means discouraging.

By this system of examination of all neat stock at Brighton and Watertown the commission have practically reached all of the cattle brought into this State by the regular transportation companies. As has already been stated, there are other animals brought in from time to time, records of which, up to the establishment of these orders, could not be obtained. As to these animals, the Board required, as a part of General Order No. 3, that every person desiring to bring neat stock into Massachusetts from points without its borders should obtain a special permit; and further, that as soon as the animals had crossed the line and had arrived at the point designated they should be placed in quarantine, there to remain until subjected to the tuberculin test. Under this provision the Board has issued 17

permits for 166 animals. All of the animals which have entered the State under these permits have been placed in quarantine and examined. All were found free from tuberculosis.

In considering all the statistics based upon the work resulting from the general orders of November 20, it must be remembered that they have been in practical operation but a short time, and that the figures are based upon not more than about one month's experience.

*Summary.*

Whole number of neat cattle reported by inspectors and by others under section 29, chapter 491, Acts of 1894, . . . . .	3,295
Whole number of neat cattle examined at Brighton, Watertown and Somerville, . . . . .	1,432
Whole number of neat cattle examined in Nantucket, . . . . .	665
<hr/>	
Total, . . . . .	5,394

Of these all were examined with tuberculin, as a result of which there were found tuberculous —

From inspectors and others, 810, or about 24.58 per cent.

From Brighton examinations, 89, or about 6.21 per cent.

From Nantucket examinations, 6, or about .9 per cent.

In considering these results, it should be remembered that among the first lot are a great number of animals that were selected by the inspectors, upon physical examination, as being suspicious, so that it is not right to consider the per cent. indicative of the probable extent of tuberculosis among the herds of the State.

The figures coming from the examinations made at the markets are valuable, for they show, almost absolutely, the whole number of the diseased animals; and they are the first reliable statistics of the kind ever obtained, so far as we are aware, under any similar conditions.

Nantucket is the only part of the State that has as yet been examined, herd by herd, taking in all of the animals. The results are exceedingly satisfactory, but, inasmuch as the animals here are naturally isolated, the result cannot be considered as an indication of the average percentage of the disease in the rest of the State.

### “TUBERCULOSIS.”

Tuberculosis in cattle is a subject of equal importance, not only to the agriculturist but to the public generally. Its eradication from the animals from which we derive so large a portion of our nutrition is of the utmost importance from the standpoint of public health. The insidious nature of the disease has much to do with the comparative slowness with which professional and public attention has been directed to it.

In the middle ages tuberculosis in animals was recognized as contagious, and laws were passed prohibiting the use of the carcass for food, which laws have remained in force in Italy and Spain up to the present time. In the sixteenth century it was confounded with syphilis, and at the end of the eighteenth century with glanders. The propagation by contagion in herds was recorded in Germany by Ruhling in 1774 and by Krunitz in 1787, and more recently by Spinola, Zanngers and others. In France the same was claimed by Fromag, Huzard, Lafosse, Dupont and Crucel.

The manifest tendency of the disease to run in families, and to develop under special unwholesome conditions of life, serves to weaken the belief in contagion, and in central and western Europe such belief had become practically extinct among medical men, when their attention was recalled to the subject by scientific inoculation of tuberculosis in rabbits and guinea pigs by Villemin in 1865.

No practical addition to our knowledge of the disease was made until Koch discovered in 1882 the bacillus tuberculosis, since which the identity of the disease in man and animals has been fully established.

### PREVALENCE.

Owing to the facts that up to within a very short time we have been unable to make a reasonably sure diagnosis, and that we have had no systematic inspection of our abattoirs and slaughter houses, there are no available statistics as to the prevalence in our immediate vicinity. All we can do is to reason by analogy from such statistics as are obtainable. The following abattoir statistics, showing the percentage of tuberculous animals, are of value in this connection: Prussia, 6.3

per cent.; Berlin, 12 per cent.; Dresden, 14.4 per cent.; Bromberg, 26.2 per cent.; Upper Silesia, 9.5 per cent.; Midlothian, 20 per cent.; Yorkshire, Eng., 22.8 per cent.; Durham, Eng., 18.7 per cent.; London, 25 per cent.

In England, during an outbreak of contagious pleuropneumonia, extending over a period of sixteen months (1890–91), there were slaughtered as being affected, or having been exposed, 12,000 animals, all of which, under the direction of the department of agriculture, were subjected to a critical post-mortem examination by skilled veterinary surgeons for the purpose of ascertaining the prevalence of tuberculosis, from which were derived the following results: cows, 16.09 per cent.; bulls, 1.53 per cent.; cattle over one year, 2.77 per cent.; cattle under one year, 1.2 per cent. Of the 12,000 examined, 12.2 per cent. were found tuberculous. In some herds the rate was as high as 75 per cent., and only a few herds were entirely free. Earl Spencer's herd of Jerseys, containing twenty odd animals, were tested by tuberculin, and all reacted. Post-mortem examination of the entire herd confirmed the diagnosis. (Report P. H. Brice, M. S. (P.).)

At a recent conference of the sanitary association of Scotland, Professor Wright presented estimates that tuberculosis in cows causes an annual loss to the owners of dairy stock in Scotland of £440,000 sterling, or \$2,200,000. (Veterinary Journal, page 391, November, 1893.)

Professor Jansen of Tokio Veterinary School, in his report of the contagious diseases of the domestic animals in Japan, says it has never been witnessed among domestic cattle, though it prevails among those imported into the country, especially in the Devons, Ayrshires, Americans and their crossings with the indigenous breed. According to the abattoir statistics, he says fifty per cent. of the American cattle and their crossings are tuberculous. (Flemming's Journal, page 45, January, 1894.)

Any reliable estimate of the percentage of tuberculous animals in a given area can not be given, for reasons before mentioned; but that it exists to an alarming extent none deny. From our experience the percentage is variable in different herds, bearing a direct ratio to the surroundings and conditions under which such animals have been perpetuated and

kept. In one instance a herd of five cows, kept especially to furnish the children with a pure milk supply, all reacted, and the post-mortem examination showed that they were tuberculous. In a herd of sixty-four animals, carefully selected, and kept under apparently the best conditions for a private milk supply, sixty of the sixty-four reacted, all of which were killed, and the post-mortem examination confirmed the correctness of the diagnosis.

In the examination of a herd of 23 animals 17 were condemned.

"	"	"	15	"	5	"
"	"	"	9	"	3	"
"	"	"	93	"	14	"
"	"	"	21	"	7	"
"	"	"	21	"	19	"
"	"	"	28	"	10	"
"	"	"	17	"	11	"
"	"	"	10	"	2	"
"	"	"	26	"	3	"
"	"	"	25	"	3	"
"	"	"	67	"	12	"
"	"	"	22	"	13	"
"	"	"	15	"	5	"
"	"	"	9	"	9	"
"	"	"	39	"	14	"
"	"	"	39	"	24	"
"	"	"	33	"	4	"
"	"	"	64	"	40	"
"	"	"	38	"	30	"
"	"	"	103	"	19	"
"	"	"	63	"	53	"

Upon post-mortem examination all were found tuberculous.

We have had numerous other instances where in large herds of cattle the percentages have averaged from 100 per cent. down.

The following table, prepared by "Rockl," is of interest in this connection: of 51,427 cattle slaughtered in 1888-89 in abattoirs and butcher shops in Germany, the percentage of infection according to age was as follows: up to six weeks old, 0.6 per cent.; from six weeks to one year, 0.6 per cent.; from one year to three years, 11.4 per cent.; from three years to six years, 33.1 per cent.; over six years, 43.4 per cent. (Report of P. H. Brice, M.D., to the Provincial Board of Health, Toronto, page 25.)

The prevalence of consumption in the human being is so well recognized that it is not necessary to set down here, at length, any statistics. The mortality of human beings throughout the world from all causes shows of the entire death rate one in every seven is from consumption. While this is the general average throughout the world, statistics show that this rate is greatly increased in special occupations and among special classes of people, and further shows that the denser the population the greater is the percentage of deaths from tuberculosis.

An excellent table of this sort has been prepared by Dr. Lagneau in the statistics of 662 cities in France, which show that the closer the people are packed together in cities the more frequent is this disease. These tables show the number of persons annually dying from consumption out of every one thousand inhabitants in cities of different populations as follows:—

95 cities with less than 5,000 inhabitants, . . . .	1.81 per cent
332 cities of between 5,000 and 10,000 inhabitants, .	2.16 per cent.
127 cities of between 10,000 and 20,000 inhabitants, . .	2.71 per cent.
50 cities of between 20,000 and 30,000 inhabitants, .	2.88 per cent.
46 cities of between 30,000 and 100,000 inhabitants, .	3.05 per cent.
11 cities of between 100,000 and 430,000 inhabitants, .	3.65 per cent.
Paris, with 2,224,704, inhabitants, . . . . .	4.91 per cent.

This table shows that this disease is more frequent where the population is denser, and where, therefore, the inhabitants are subjected to poor sanitary conditions.

#### PUBLIC HEALTH.

The danger to the public health from the prevalence of tuberculosis in our neat cattle is due to the fact that when the flesh or milk from such animals is consumed by man it may, by the introduction of the germ, transmit the disease.

Direct experiment with the milk or meat of tuberculous animals cannot be made upon man, but such, however, have been made upon the lower animal, conclusively showing its infectious character. Among many hundred that have been made the following may serve as an example:—

Hiershberger inoculated rabbits in the abdominal cavity with the milk from thirty-nine tuberculous cows, in which the udder was sound, and produced tuberculosis in fourteen cases. Bangs inoculated from sixty-three tuberculous cows, selected for their

sound udders, and found the milk of nine of them infected. A careful microscopic examination revealed tuberculosis in the udders of three of the cows, leaving six that gave infected milk, in which, even after death, and with all scientific appliances, no tuberculosis could be found in the udder. Another case is recorded where the owner of a very valuable herd of cattle, finding that a large proportion of them were tuberculous, withdrew his milk from the market and used it for fattening his pigs, of which he had a large number. The result was that the pigs, almost without exception, became so infected with the disease that it was necessary to slaughter the whole herd.

An example of this came under the direct observation of the Board, where thirteen animals were quarantined on a farm removed from all other animals, and which had responded to the tuberculin test. These animals were used for experimental purposes during the past eight months, among which experiments one was the feeding of milk to four calves, which had been demonstrated to be free from disease, by the test. The calves have since been slaughtered and found to be tuberculous.

The communication of the disease from cattle to man can only be shown by accidental cases, many of which have been recorded. Doctor Treom describes the poor, emaciated, diseased animals furnished to the tribes of north-western Indians, — how they eat the liver, tallow and entrails, raw and fresh, and how the carcass is dried, pounded, packed in skin to be eaten later uncooked, even though these animals died of disease. The Indian mortality of consumption is fifty per cent. of all deaths, at several points; while at Crow Creek, Dak., fifty out of the total Indian population of twelve hundred die yearly of consumption and scrofula. (1 Amer. Practitioner, quoted by Law, *ibid.*, page 131; 2 Holder, Medical Record, Aug. 13, 1892, quoted by Law, *ibid.*, page 131. Scrofula is usually of tuberculous origin. L.) Dr. Washington Matthews spent twenty-one years among the Indians. He states that their food is the primary cause of tuberculosis among them, and that when the supply of fresh beef is liberal the death rate from consumption is highest. (Census of 1880.)

The question of infection of tuberculosis being conveyed by the milk is often of even greater importance than is infection by flesh. Doctor Brush, who is a physician and cattle breeder,



in his paper on the "Coincident geographical distribution of dairy cattle and tuberculosis," read before the New York State Medical Society, Feb. 5, 1894, calls attention to the fact that in lands like Egypt the indigenous inhabitants retain immunity while associating for a long time with consumptive immigrants; while on the other hand, in regions like Australia and the Sandwich Islands the inhabitants have become infected after the introduction of dairy cattle. The best dairy cattle breeds, he argues, are the tubercular breeds, while others not classed as dairy cattle are exempt from tuberculosis, owing to their vigor and health. Again, in all dairy countries the prevalence of tubercular consumption is a settled fact, while the only countries at all in doubt are those where the dairy products are supplied from other sources than our domestic cow. Referring to China, he spoke of the pure Chinese as a people who did not use milk, while the Tartars in that country were meat and milk consumers; and therefore the observations of medical men are confusing, and they confess that they cannot understand why the disease prevails among the dominant Tartar class, and not among the poorer Chinese, who, according to all preconceived notions, ought to be tubercular. The doctor then contrasts the conditions in Spain and Morocco, where the climatic conditions are about the same: "Morocco, where there are no European dairy cows, is exempt from tuberculosis; while in Spain and Portugal, where dairying is carried on in the European style, tuberculosis prevails."

The danger from the use of meat of tuberculous animals is small in comparison with the danger from milk, owing largely to the fact that beef before being eaten is subjected to a greater or less degree of heat, whereas milk is taken largely in its natural form, and is used generally in the uncooked state. This, however, cannot be said of all the products of the dairy, the butter and cheese being fully as dangerous as the milk. To what extent the milk of tuberculous animals contains the bacilli of consumption is an exceedingly difficult question. One fact is, however, absolutely certain, that the bacillus has not infrequently been found in such milk. Reasoning from this stand-point, we must believe that the danger is considerable with milk from tuberculous cows, and should never be used. Numerous experiments have been made by

scientific observers, proving that the milk is often affected, even though the disease has shown no localization in the milk glands.

Hirschberger experimented with the milk from twenty tuberculous cows, and in fifty-five per cent. of all the samples experimented with he found the bacillus of tuberculosis.

Dr. Demme records the case of four infants in the Child's Hospital at Berne, the issue of sound parents, without any tuberculous ancestry, that died of intestinal and mesenteric tuberculosis, as the result of feeding on the unsterilized milk of tuberculous cows. They were the only cases in which he was able to exclude the possibility of other causes of the disease, but in these he was satisfied that the milk was alone to blame. (Law: Cornell University, Experiment Station, Bulletin 65, page 137.)

The infant son of a college mate of one of us, a comparatively strong and healthy child of twenty-one months, visited his uncle for a week. While there he drank the unsterilized milk of a cow which was soon after condemned and killed in a state of generalized tuberculosis. A few weeks after his return, the child began to fail, and died three months after the fatal visit, a mere skeleton, with *tabes mesenterica*, or consumption of the bowels. Both of the child's grandfathers had died of tuberculosis when over sixty years of age, as well as two grand-aunts and one grand-uncle. The child never saw but one of these, and him but two or three times, and for short intervals only. A second child brought up on sterilized milk is in robust health. Both parents are in excellent health. (Private letter to J. L. H.; also reported by Law, *ibid.*, page 137.)

In the practice of Dr. Stang of Amorback, a well-developed five-year-old boy, from sound parents, whose ancestors on both sides were free from hereditary taint, succumbed after a few weeks' illness, with acute miliary tuberculosis of the lungs and enlarged mesenteric glands. A short time before, the parents had their family cow killed, and found her the victim of advanced pulmonary tuberculosis. (Law: Cornell University, Experiment Station, Bulletin 65, page 137.)

In the spring of 1890, Dr. Gage, city physician of Lowell, Mass., had as a patient an infant which died of tubercular meningitis. Its parents were healthy and surroundings good.

It had never been fed on anything but the milk of a single cow. The cow's milk was microscopically examined, and found to contain the bacillus tuberculosis. Guinea pigs inoculated with her milk developed the same disease. A second child fed upon the same milk was developing symptoms similar to those discovered in the child that died. Dr. Gage could find no way to prevent the sale of the milk, unless he bought and paid for the cow out of his own pocket. So far as he knew, she was still being used as a milk supply a year later. (Ernst: Hearing before Committee on Public Health, Mass. Leg. of 1891; Publications Massachusetts Society Promotion Agriculture, page 19.)

May 30, 1879, a cow died of generalized tuberculosis in Providence, R. I., the lungs, most of the abdominal viscera, muscular tissue and udder being tuberculous. The milk had been used in the family. In August the baby was taken sick, and died in seven weeks of tubercular meningitis. Post mortem showed tubercular deposits in the membranes covering the brain and some in the lungs. Two years later a two-year-old child in the same family died of tubercular bronchitis; and seven years later a nine-year-old boy, "delicate" for years, died of "quick" consumption. So far as known, the family on both sides were rugged and healthy. (Ernst: Report to Massachusetts Society Promotion Agriculture.)

Olliver, at a meeting of the Academie de Medicine of Paris, stated that a patient of his, a young woman twenty years old, of vigorous health and without constitutional trouble, had acute tubercular meningitis (inflammation of the membranes of the brain, of tubercular origin). She had been educated at a boarding-school where thirteen pupils had been ill with, and six had died of, tuberculosis within a few months. The milk supplied to the school was from cows kept on the place. Upon examination, these animals were found to have tubercular ulcers upon their udders, and after being slaughtered were found to be generally tuberculous. (Bacteriological World, August, 1891, translated from Allgem. Med. Cent. Zeit.; also La Semaine Medical, Paris, Feb. 25, 1892.)

Tuberculosis localized in the mammary gland is of not uncommon occurrence in cattle. Milk from such animals is found to contain the bacilli, and is capable of producing the disease.

Unlike other affections of the mammary gland, tuberculosis does not at once change the appearance and quality of the milk secreted. It is a fact that for months after the disease has appeared in the gland the milk is to all appearances normal, and may be sold and consumed without arousing the least suspicion. Authorities are, however, not fully agreed as to whether the milk from tubercular cows in which the udder is not involved should be considered dangerous; but the results of experiment have been positive in a large number of cases where no recognizable disease of the udder was manifest.

Professor Ernst and Dr. Peters, from the result of their experiments, conducted under the most exacting conditions and with every possible precaution against contamination, found that the proportion of positive results in a lot of cows affected with a high degree of general tuberculosis was eighty per cent.; in a lot affected with only a moderate degree, sixty-six per cent.; and in a lot in which the disease was localized in the lungs, thirty-three per cent.

The bacilli could only be demonstrated microscopically in one specimen of the milk, showing that inoculation experiments are the most certain guide as to whether the milk is infectious or not. In conclusion Dr. Ernst says:—

*First*, and emphatically, that the milk from cows affected with tuberculosis in any part of the body may contain the virus of the disease.

*Second*.—That there is no ground for the assertion that there must be a lesion of the udder before the milk can contain the infection of tuberculosis.

*Third*.—That, on the contrary, the bacilli of tuberculosis are present, but with no discoverable udder lesions.\*

In Bulletin No. 3 of the United States Bureau of Animal Industry (1893) is the report of the inoculation of guinea pigs with milk from six tuberculous cows, where the udder was not visibly diseased, in which positive results were obtained in two cases and negative in four. J. J. McKenzie reports forty per cent. contained bacilli in animals where no lesions could be found in the udder by post-mortem examination.

Some authorities, however, still contend that the udder is diseased when the milk is infected, but that the disease escapes

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\* Many of the preceding examples are collected in Vermont Bulletin No. 42.

observation. However this may be, if such is the case, the mere fact that the udder may be diseased and the disease not recognizable simply casts suspicion upon all milk from tuberculous animals. When we consider, therefore, the prevalence of tuberculosis among our cattle, and take into account the hidden character of the disease, a certain amount of suspicion rests upon all milk while these conditions exist.

The State Board of Health of New York, in its recent report on this matter, says:—

There can no longer be a reasonable doubt that tuberculous cattle are extensively distributed through the dairies of the State, forming centres of infection in their respective herds; that the milk from such cattle is bad, and, in many cases, though not acting perniciously upon all who partake of it, is still sufficiently dangerous to warrant as earnest precautions and as effective prophylactic measures as in the case of small pox, typhoid and cholera.

While this Board does not for a moment contend that animal tuberculosis is the main cause of consumption in the human family, it is, however, an element of danger that should be removed.

#### THE TUBERCULIN TEST.

As so many descriptions of tuberculin and the method of using it as a diagnostic agent in tuberculosis among neat cattle have been recently published by the agricultural experiment stations throughout the various States and in the newspapers from Maine to California, it hardly seems to be desirable in this report to give a minute description of its nature and manufacture.

Briefly speaking, tuberculin is a product of the bacillus tuberculosis. It is prepared by making what is known in the laboratory as a pure culture of the bacillus in a proper fluid medium. These cultivated bacilli are allowed to grow for a certain length of time, during which they produce their peculiar product, which is known as tuberculin. This tuberculin mixes with the medium in which the bacilli have been grown, and at this stage the fluid is sterilized, that is to say, it is subjected to a temperature of 212° F. for a sufficient length of time, to absolutely kill any germs that may be in it. The mixture is then put into a porcelain filter, which is not unlike a rather large candle in appearance. The contents of the filter are then, in a proper

way, subjected to an exhaust pressure of sufficient force to strain the purely fluid parts of the contents out through the porcelain. This filtered fluid does not contain any of the bacilli. The fluid is next properly evaporated, which drives off the surplus water and concentrates the tuberculin. When this concentration reaches a certain point the fluid is carefully bottled, under conditions which absolutely prevent the introduction of any germ, in order that it may be kept unchanged. When the fluid is to be used it is properly diluted to a certain standard and again carefully bottled.

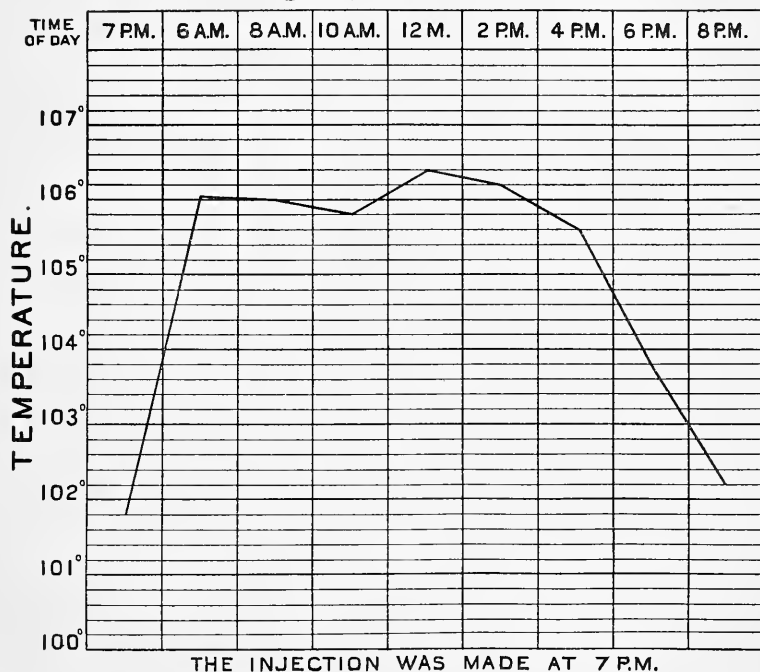
In making the test, a very small quantity of this tuberculin is injected under the skin of the animal, three drops of the concentrated tuberculin, or thirty drops of a ten per cent. solution, from whence it immediately enters the blood. Experience has shown — and this is the value of the test — that if this very small dose is injected into an animal which already has tuberculosis, it is sufficient to produce a fever in the animal; that if the animal is free from tuberculosis, — that is, if the living bacilli of tuberculosis are not in its system, — the dose injected is not sufficient in quantity to make any impression whatever, and is promptly eliminated.

Whether or not the fever has been created in a given animal by the tuberculin is demonstrated by the proper use of the clinical thermometer and a careful study of the tabulated results obtained; and so accurate are its results, that we have been able to make hundreds of consecutive examinations upon animals, under ordinary farm conditions, without a single error.

Our method of making the test is invariable: a sufficient number of preliminary examinations are made with the thermometer to ascertain accurately the normal temperature of the given animal, these examinations being made at, as nearly as possible, the same time of day in all cases. The normal temperatures having been ascertained and recorded, the injection of tuberculin is made in the evening. Eleven hours after the injection we commence taking and recording the trial temperatures. These are taken each two hours until the test is finished. The time required to properly complete this part of the test varies considerably; it may roughly be stated at from six to thirty hours, with an average of about twelve hours. It may be of interest to show the behavior of the thermometer in one of these

cases, as recorded upon the clinical chart such as is commonly used in the work of this Board. Such a chart is as follows: —

### CLINICAL CHART.



This animal was condemned and found tuberculous.

Inquiry is frequently made as to how many degrees of rise are considered to surely indicate the presence of the disease in a given animal. This question is one that cannot be easily answered in an off-hand way, and it is not safe to condemn an animal unless the temperature table has first been carefully studied. The reaction caused by the tuberculin is so plainly marked in by far the greater number of the cases *under the usual conditions*, that the animal may be condemned or released with absolute certainty, *providing the necessary care has been observed in making up the table*. On the other hand, a careful study of the tabulated tests appended to this report will show the exact nature of many of the difficulties and the complexity of some of the problems submitted to the examiner. While the testimony of those who have had the most experi-

ence in using tuberculin, as a diagnostic agent among neat cattle, is universally and emphatically in its favor, there are those who, upon the slightest sort of experience or upon theoretical grounds, or upon no grounds whatever, condemn it as being so uncertain in its action that it is practically useless; and they advance the most senseless arguments to defend this position, as, for example, "Koch, when he invented tuberculin, did not intend it for this work, but as a cure for consumption in human beings" This is true; but when it was being used for this purpose so largely, just after its discovery, it was noticed that in every consumptive patient to which the agent was administered there was a decided rise in temperature after a few hours.

This fact was seized upon by Professor Gutman of the Veterinary Institute of Dorpat, Russia, who experimented with the agent on cattle, and found the high reaction in tubercular *animals* to be fully as constant; since which time tuberculin has been used with almost uniform satisfaction in the detection of tuberculosis in cattle. "Bollinger says tuberculin is a most valuable aid to diagnosis in the case of cattle suspected of tuberculosis." (London Veterinary Journal, February, 1891.)

Satisfactory results have been reported by the imperial sanitary office of Berlin, by the Toulouse Veterinary School and by the Copenhagen Veterinary School.

The Belgium minister of agriculture issued a circular Nov. 22, 1892, giving official sanction to test inoculation for tuberculosis. Professor Dukerhorf says: "The results are absolute and gratifying, and show that tuberculin is a reliable agent for determining the presence of tuberculosis in cattle." (Journal Comparative Medicine, October, 1892, page 637.)

The conclusions arrived at by the Paris Congress of 1893 for the study of tuberculosis were: "That, notwithstanding the negative results, which are happily very rare, it is an undeniable fact that the use of tuberculin constitutes by far the best means of detecting the existence of tuberculosis in the domestic animals." (Page 411, F. Journal, December, 1893.)

The value of tuberculin as a diagnostic agent in our own country is vouched for by the Bureau of Animal Industry, Professor Law of Cornell, Professor Pierson of the University of Pennsylvania, Drs. Peters, Faust and Cooper Curtis, inspectors for the New



York State Board of Health, and J. J. McKensie of the Provincial Board of Health. The experiment stations of Canada, Vermont, New York, New Jersey, Pennsylvania, Virginia, Wisconsin and Minnesota have used it with convincing results. Quotations might be made from the reports of many investigators, American and foreign; but the following, taken from the Vermont Bulletin No. 42, may suffice:—

“We shall now stop publishing reports on tuberculin in the Berlin Veterinary Weekly unless they contain some new facts or views. Since the publication of the reports of the extensive experiments of the royal health office, we may regard the question of the value of tuberculin in the diagnosis of tuberculosis of cattle as settled. The proof which has been presented to our readers is more than sufficient. The results are absolute and gratifying, and show that tuberculin is a reliable agent for determining the presence of tuberculosis in cattle.”

It will therefore readily be seen that the use of tuberculin as a means of detecting the existence of tuberculosis in cattle has become general, notwithstanding the fact that for the purpose for which it was originally intended it has fallen into entire disuse.

It is only comparatively a few years (1882) since the fact was discovered and generally accepted that tuberculosis—that is, consumption—is a contagious disease, and that it is due in all cases to the presence of a particular germ, the bacillus tuberculosis.

Among people who have not given the matter of this disease any special study or attention, there is a misapprehension to a greater or less extent as to the nature of the disease and its contagion. In order that a given subject may become afflicted with tuberculosis, generally speaking, there must be two conditions; first, the presence of the bacillus; and, second, a receptive condition of the individual. No matter what the condition of the individual is, it is impossible to have the disease unless the germ is present. Practically speaking, it is also true that in a great majority of cases the presence of the germ will not produce the disease unless the subject is in a condition which is favorable to the germination of the bacillus. Because of the existence of the germ, we are enabled to determine, by the use of tuberculin, the presence of the disease in the individual.

While the commission, by destroying tuberculous animals, are removing the sources of contagion, and thus to a greater or less extent removing the dangers of causing consumption among human beings, from the very fact that this same disease exists in human beings, where the same methods cannot be pursued, no system for eradicating the disease can be perfect unless the other element in producing this disease is also considered and dealt with; that is, not only should the animals which are afflicted with this disease be destroyed, but methods should be adopted which shall reduce to a minimum the number of animals which are in the receptive condition.

Experience has shown that sound, healthy cattle may be in the presence of the germ without contracting the disease; whereas other animals, subjected to the same conditions and presumably not subjected to any greater amount of this contagious principle, have become well-marked cases of tuberculosis. The reason for this is plain that it is due to the condition of the animal exposed to the contagion. If, therefore, greater care is taken to preserve the general vigor of neat stock, it will have a very material effect upon the percentage of tuberculous animals throughout the Commonwealth. It must be remembered in this connection that, scientifically speaking, tuberculosis or consumption is, except in possibly extremely rare cases, not directly inherited. Theoretically speaking, therefore, every animal which is born, if the conditions are otherwise equal, is given an equal opportunity of escaping this disease; but the great difficulty with this is, that if the calves are born from tuberculous parents two conditions are apt to be present: first, that their organisms lack vigor, because the constitution of the parents has been sapped by the presence of this disease in them; and, second, because from the moment of their birth, when weak, not only from their inherited condition, but from the mere fact of their tender age, they are exposed to the influence of the contagious germs present in the body of the mother; hence it is that such a large number of cases of tuberculosis are apparently inherited, and hence the danger of breeding from tuberculous stock.

Another large class of tuberculous patients comes from the treatment of animals in dairies, due to not observing proper sanitary arrangements; not taking sufficient care as to the quality

and quantity of the air which the stock is allowed to breathe; not giving them sufficient sun-light and exercise; feeding the animals with too large a quantity of stimulating grain, in order that the milk supply may be increased to its utmost limit; by too frequent breeding; and all causes of a like nature which tend to reduce the vigor of the parent stock. The reasons why the neat stock in this State is subjected to these conditions, which we have before referred to, is principally due to the fact that a large proportion of the stock in the State is kept for dairy purposes, where the owner desires to make them yield as large an annual profit both in milk and calves as possible.

Having this one object in view, and without a due consideration of the effect of this upon the health of the stock, the dairymen have been for years advised to treat the animals in the way before described. It is another noteworthy fact that tuberculous cows are exceedingly apt to yield large quantities of milk; and, as this is the object for which a great proportion of the cows are kept, it follows that the calves of these diseased animals are very apt to be the ones that are reared for future dairy purposes.

It is another fact of comparatively recent discovery, but of undoubted truth, that the use of milk and meat from diseased animals as food is a source of a probable large proportion of the consumption which exists in mankind.

The difficulties of the situation from the stand-point of the veterinarian have heretofore centred around the fact that many animals having every appearance of perfect health, with bright eyes, smooth coats, good appetites, giving large quantities of milk or putting on fat easily, — in fact, performing all their functions apparently perfectly, — were very frequently found in the slaughter houses or, when they died from accident, to be tuberculous; and it was a well-known fact that an animal might be tuberculous and still not present the slightest external symptoms of it to the most skilled observer. Under these circumstances, it was obvious that, in the light of the experience at that time, unless all the animals in the herd where tuberculosis was known to exist were killed, there could be no certainty that all of the centres of contagion in that herd would be removed.

These were the conditions at the time when the peculiar

property of tuberculin, to which we have already referred, was discovered. In view of the manifold difficulties and errors which arose with the use of the physical test, it does not seem to be a good argument to say that tuberculin should not be used as a test because it is occasionally found to cause an error in the diagnosis; nor should this fact, if fact it be, be allowed to interfere with its general use in proper hands, as a means of identifying tuberculous animals. Any intelligent man must readily agree with the commission in thinking that it is better that an occasional animal which is free from the disease should be destroyed (as the law provides that when an animal is destroyed, and is found, upon post-mortem examination, to be free from the disease for which it was condemned, the owner shall receive a reasonable sum from the Commonwealth) than that many of those having the disease should be allowed to live to sow the germs of this incurable disease broadcast, not only among others of their kind, but among human beings. There is no doubt whatever that very many of the errors which have been charged to tuberculin should rather be placed to the lack of experience, errors in judgment, or the occasional carelessness of those making the tests. This is to be expected. It is an inseparable condition attending the situation, which, as the experience ripens and extends, will become a factor of less and less importance, because it will be of less frequent occurrence, and should be thoroughly considered before attempting to arrive at the conclusion that the remedy is valueless.

Before leaving the subject of tuberculin and its application in the field as a means of determining the existence of tuberculosis, it may be of value in this connection to consider some of the objections which have been raised against it.

The commission is not unmindful of the fact that the application of this test to the extent that it has been used in Massachusetts is comparatively new, that it has been used in localities throughout the State more or less scattered, and where the communities have not followed closely the several steps which have led up to its adoption, and they are, therefore, not surprised that its introduction into general use has met with diverse opinions as to its merits. The commission, however, is very glad to say that, as a whole, its adoption has met with popular approval; that by far the greater number of criticisms have

been in favor of the method established; not only have favorable criticisms been met with throughout the length and breadth of this Commonwealth, but the matter has been followed out with keen interest in the adjoining States, and has there met the almost universal commendation. The criticisms have usually come from persons not having a full knowledge of the subject, or from those who, owning apparently healthy stock which have not indicated the slightest external symptoms of being tubercular, and which are apparently performing all the functions of their lives with at least their normal regularity, have had such cattle, after being tested with this agent, condemned and killed as tuberculous. It is not to be wondered at that such persons should look with considerable doubt upon the efficiency of an agent which was apparently robbing them of their property.

It is now proposed to briefly take up some of those objections to the use of tuberculin which have recently been put forward, and to answer the argument contained in them.

#### ARGUMENTS.

It is said, "The intelligent physician of to-day does not need tuberculin or any other drug to enable him to make a correct diagnosis of tuberculous disease in the human subject;" from which it is argued that there is no need to use the agent for this purpose in the bovine species.

This is a fallacious argument, for it is not true that the intelligent physician of to-day can in all cases correctly diagnose the existence of tuberculosis in the human being by means of a physical examination. Tuberculosis, whether in the human being or in animals, is a germ disease, and may be located in any organ or tissue of the body; it is true that in perhaps a majority of the cases the lungs are affected, and that it is a comparatively easy matter to diagnose a case of pulmonary tuberculosis. Under these circumstances, with a human being, the practitioner is able, by using the stethoscope, to accurately examine all parts of the chest and the action of the different respiratory movements at his own will; he has to deal with a voluntary agent, who is able to assist him in his work very materially. Such an agent can be directed to breathe in, to breathe out, to arrest the motion of breathing, to cough when he is asked, to

make different sounds, and to otherwise exercise the functions of his lungs and vocal chords. In addition to this, it is a simple matter for the practitioner to obtain specimens of the sputum, which may then be easily subjected to a laboratory examination, that the presence of the bacillus may be determined; in other words, every facility is given to the practitioner to assist him in properly arriving at a conclusion. If, however, the seat of the disease is in other portions of the body, as, for instance, in some of the organs contained within the abdominal cavity, it is oftentimes very much more difficult to arrive at a positive diagnosis; in fact, cases have gone on for years, and have been treated by skilled practitioners for dyspepsia and other intestinal disorders, and not until after a post-mortem examination has it been known that the origin of the trouble was tuberculosis.

When, however, the examiner turns from the human being to the animal, an entirely different problem is presented. Here again actual experience has shown that it is only in a portion of the cases that the disease takes the form of pulmonary tuberculosis. Even in this case the examiner is met with a multitude of obstacles. He has not an intelligent voluntary agent to deal with, who can assist him in his examination by any of the methods before described. The examination of the lungs is made much more difficult because these organs are deeply seated, covered by large masses of flesh, and the whole body is closely covered with hair.

In addition to this, experience has shown that, while in a very large number of cases the disease is firmly established, yet the evidence of it in the lungs may be so slight as to make it impossible for the examiner, under the conditions presented, to detect its existence. In fact, the lungs of a neat creature must be very considerably diseased before the fact can be ascertained by physical examination.

The commission has found, upon post-mortem examination, animals with well-marked lesions of tuberculosis in various parts of the body, while the lungs were entirely free. An extremely instructive case of this sort was met with recently. An animal responded to the tuberculin test, and was condemned. Upon post-mortem examination the only lesion of the disease which could be detected was situated underneath the skin,

deeply along the outer side of the left hind leg, extending from the gambrel to the pastern joint. Here numerous collections of the peculiar product of the disease were found scattered over the entire length described. In this case, for instance, it would have been impossible to pronounce the animal a case of tuberculosis had it not been for the tuberculin.

Another argument frequently adduced against the use of tuberculin is that the disease is not any more prevalent to-day than it was fifty years ago. What the conclusion is to be drawn from this statement, it is difficult to say. It is not claimed by the commission that the tuberculin is a proper agent because of the increased prevalence of the disease; but, even if the disease does not exist to-day any more than it did fifty years ago, there is no reason why every effort should not be made to seek out and remove that which does exist, now that science has placed means for doing so in our hands. In regard to the statement of the existence of the disease, as compared with fifty years ago, it is impossible to say whether it is true or false. No reliable statistics have ever existed, or do exist, to show the prevalence of this disease among animals; and it is only since the discovery of the peculiar faculty of tuberculin that the problem of eradicating the disease from among neat cattle could be seriously considered.

If tuberculin is as efficient as this commission, and others who have used it in large quantities, believe it to be, it simply puts in our hands an accurate means of determining the existence of the disease. As this agent has not been used before, and as its use has proved conclusively that the disease may exist to a marked extent in animals which show no external symptoms of it, it is not a proper comparison to place its declarations beside those coming from a simple physical examination, except to say that it is a much more reliable method in determining the existence of the disease.

Another argument used against tuberculin and the present policy of the State in endeavoring to eradicate the disease by the destruction of the centres of contagion, is contained in the statement that, "while tuberculosis was on the increase (in the bovine race), consumption, the same disease in the human race, was on the decrease."

In the first place, as there have never been any statistics, it is

impossible to say whether or not tuberculosis is on the increase in the bovine race. We are simply finding more cases of it because we are using a better means of detecting it.

It is true, however, that in certain localities statistics show that the percentage of deaths from consumption in the human race are on the decrease. The cause for this decrease is apparent to any person who has properly studied the problem. Statistics show that the deaths from consumption in these localities (where statistics have been accurately kept) were for a certain time on the increase, and then within very recent years they began to decrease. This decrease was coincident with the adoption by boards of health and other proper authorities of the theory of the contagiousness of the disorder, and the consequent strenuous efforts made to eliminate this element of its spread by scattering broadcast among the people full information as to the better methods of preventing the extension of contagious diseases and of maintaining health. The fact that, with the adoption of this view and these methods, this most insidious disease has commenced to decrease in frequency, is most encouraging.

It is further stated (as an argument against the eradication of this disease by the methods adopted by the commission) that "In three of the Southern cities, where milk is used but little as a beverage, and consequently, to follow the arguments of the commissioners and scientists, the death rate from consumption should be low, it was 162 in Nashville, 144 in Charleston and 121 in New Orleans, — greater than in many of the largest milk-consuming centres of the North." This is based upon the erroneous supposition that it is claimed by this commission and those interested in this work that the source of consumption is in all cases directly traceable to the use of milk. This is one of the many sources of infection. It is a mere distributor of the germs of contagion, and, as has already been stated, in order to produce the disease there must be a receptive condition of the individual. Conditions of life in the South are far different from those in the North; and until all of the different conditions have been carefully studied and given their proper place in the consideration, the mere statement of the percentage of death rates within the limits of these Southern cities is of no value whatever.

It is further stated that "the germ or tuberculosis is pos-



sessed of great vitality, and the thorough disinfection of barns is an impossibility; as a result, as has already been the experience of some, when barns are restocked the disease will in all likelihood spread afresh. What use, then, in spending enormous sums of money and burdening the State with an expense that will not result in permanent good?"

No fair deduction can be drawn from these facts, because, until the new stock which are put into such barns have been proved to be free from the disease by the use of tuberculin or other proper method, which has never yet been adopted, it is impossible to say whether the existence of the disease in the stock is due to the germs contained in the building or is already in the body of the new animals which have been introduced.

It must be remembered that this work is comparatively new, and it has not been proved that it is impossible to properly disinfect buildings so as to remove the germs. Not only is the Board endeavoring to eradicate the sources of contagion by the destruction of the animals affected, but it is also endeavoring to disinfect the premises where the contagion has been found and from which all the diseased animals have been removed. As a matter of fact, within the experience of members of the commission it has happened that a large herd of cattle were examined with tuberculin; that a number of the animals, being all that were found diseased, were removed and killed; that the barns were thoroughly disinfected; and that the animals which had been destroyed were replaced from time to time by others which had been subjected to the tuberculin test, and found to be sound, before being allowed to enter the stable. After a period of nine months the entire herd was again examined with tuberculin, and not a single case of tuberculosis was found among them.

It has further been stated, by a person of some prominence in the veterinary profession, that "the real tuberculosis is only found in a few worn-out cows. For years such cows have been killed whenever found, and it does not necessitate any injection or other test to spot them. I venture to say that no cow that has been killed by the State agents for the past year has been a sufferer from tuberculosis."

If "the real tuberculosis is only found in a few worn-out cows," it is true that it does not necessitate any injection or

other test to "spot them." Such cases are simple, and a person having no more than a small amount of skill may easily detect them by physical examination. That the statement is not true, however, will be at once granted by any person who has given this matter any attention, for they must be satisfied, as a matter of principle, that any germ disease must have its incipient and early stages.

As to the statement that "no cow which has been killed by the State agents the past year has been a sufferer from tuberculosis," statistics of the commission absolutely show its falsity. In the first place, up to the fourth day of October of this year all animals killed were condemned upon a physical examination; and yet this writer admits that tuberculosis may be determined by such physical examination. As to those which have been killed relying upon tuberculin as a test, any person who has followed out the work of the commission and has been present at the post-mortem examinations (which are always performed publicly) can attest to the incorrectness of this statement. The public are always offered every facility to be present at the post-mortem examinations; in fact, the owners of the majority of the cattle that have been killed have themselves, or through their agents, been present; and the commission is very glad to say that in all but a few of the instances it has been able to clearly demonstrate to the satisfaction of such owners, who are clearly the persons most interested in proving the inaccuracy of the test, that the disease has been present and sufficiently well marked to be recognized by the ordinary individual with the ordinary means of observation; and the commission has had in its experience many cases where it has been obliged to destroy neat stock of persons who were, up to that time, most hostile to the use of this test, who, having been present at the post-mortem examinations, and seeing for themselves the internal evidences of the disease, have become its strongest advocates.

Another argument against the use of tuberculin is a statement as to its inaccuracy, based upon the earlier work of this commission in testing animals brought into the Brighton and Watertown markets for sale. It is true, as has been shown previously in this report, that mistakes were made in condemning the animals there, based upon the tuberculin test; but this error was

not due to tuberculin, but to other causes which have been already discussed.

Another argument adduced against the use of this agent is, "Some who are as good authority as any declare the injection of tuberculin to be dangerous, as well as useless." We have already shown that it is not useless in detecting the disease; that it is dangerous is yet to be shown by actual facts. With the thousands and thousands of doses of tuberculin that have been used in this way in this State and through this country and in Europe during the past four years, there is yet to come the first authentic account of any injury that has been done with it to healthy animals, when its use has been in competent hands. A statement of this importance should not be given weight unless it is accompanied with facts proving its accuracy. No such facts have ever yet been brought forward by any person; and these statements usually emanate from sources that have given the matter but little attention. An examination of the method by which tuberculin is prepared will show that it is impossible for it to produce the disease, and that it has not done so, the experience of the commission and many others in the field have clearly proved.

It is further said, "To kill a good, healthy cow, because it may have a small tubercle the size of a pea somewhere in the system, is worse than a blunder." Can it be said that a cow which is tuberculous, though there may be but "one tubercle the size of a pea," is a good, healthy cow, and incapable of disseminating the disease to others? Tuberculosis is a contagious disease, and if an animal has one tubercle in it, who will say that the blood is not already contaminated? Experience has satisfied this commission that there is but one course to pursue, and that is to destroy all of the animals in which tuberculosis is present, regardless of the degree.

It is further said that "The worst thing that can be said about the tuberculin test is that it is no judge of *the degree of the disease*, and that, while its indications are correct in a great majority of cases, it frequently says that the disease exists when it is in such an incipient form that the animals are apparently well and capable, under usual conditions, for many years of useful service." The use of the tuberculin is merely for the purpose of detecting the existence of the disease; in the opinion

of the commission, the degree of the disease is of no importance. An animal where the disease is present is not capable, in the opinion of the Board, of *any* years of *useful* service. To be sure, it may live for years, it may perform its ordinary functions to a profitable extent, if the owner is allowed to sell its products, but it is nevertheless a source of menace to the health of the community. There is, therefore, but one course to pursue with such an animal, and that is to destroy it.

A great majority of the objections to the work of the commission in connection with the destruction of animals is based upon the question of what remuneration the owner shall receive for the animal destroyed. This question will be taken up at length in another portion of the report.

#### MILK FROM TUBERCULOUS COWS.

One of the main purposes indirectly to be accomplished by the work which the commission is now doing in destroying tuberculous cattle is to purify the milk supply of the State. Some complaints have come to the attention of the commission in relation to the milk supply of the State in its relation to tuberculosis, which are worthy of attention. It is said, "Why, then, should the tillers of the soil be taken during their dull moments of toil and placed in the balances with the entire remainder of the State's individual wealth, and so be made to stand one-half the loss of their cows, and also taxed to help the State pay the other half, and at the same time allow any kind of milk sent into the State from other States for general family use? Is our tuberculosis any more deadly than that of Vermont or New Hampshire, or does Massachusetts owe her farmers a grudge, and intend to put them into the pauper list?"

So far as this complaint is intended to apply to the work of the Cattle Commission, they can only say that directly the whole matter is without their control. There is no law in this State which puts into the hands of the Board of Cattle Commissioners the right to regulate the sale of milk within this Commonwealth, whether such milk be derived from cows within the State, or whether it be brought, as milk, into the State, having been derived from cattle without its limits. The question of the regulation of the milk supply within this State, in connection

with tuberculosis, is a matter worthy of the attention of your honorable body.

So far as this Board is aware, the only restrictions placed upon the sale of milk are those in connection with its being up to a certain standard in quality. This matter is entirely within the control of the boards of health, and the Board of Cattle Commissioners have nothing to do with it. There is no law in this State regulating the sale of milk from tuberculous animals, and no steps have been taken heretofore by the State to test milk sold in the markets for the purposes of ascertaining whether it contains the germs of tuberculosis; that such milk, derived from a tuberculous cow, may contain such germs, has been demonstrated beyond question; and that it thus may be a source of danger to the public health is equally true.

As a practical question, it is extremely difficult to ascertain surely in any given specimen of milk whether or not the bacilli are present. There are two methods used for testing milk for these germs, — one a microscopic examination of the milk, the other the inoculation of other animals, usually guinea pigs, with specimens of the milk, to see whether they will develop the disorder. It is impossible to test the milk of this State, in any appreciable quantity in comparison with the daily consumption, in either of these ways; and the only practical method of assuring the delivery of milk that is free from tuberculosis is to go to the fountain head of the matter, and see that the cows from which the milk is derived are themselves free from disease.

As this commission has no control over the cattle without the limits of the Commonwealth, it naturally follows that, as the law is to-day, it can only purify that portion of the milk supply which is derived from the cows within the limits of the Commonwealth; and there is, therefore, a great deal of justice in the complaint that, while the dairymen of this State are subjected to a rigorous inspection of their cattle, which will in the end insure the production of milk that is free from the germs of tuberculosis, it is also true that large quantities of milk is being sold in this State from cows over which the State has no control, because they are kept outside its limits, and which are as likely to be tuberculous as are the cows of Massachusetts.

If the work of the commission is to continue, as it is now carried on, it may be said that it is not unlikely that the milk brought from without the limits of the State will be even more

liable to be contaminated than it is at present; because, under the quarantine orders now established, all neat cattle brought into this State from without its limits, except those that are in transit or for purposes of immediate slaughter, are subjected to a rigorous examination, which results, if they prove to be tuberculous, in their destruction without compensation. As a consequence, only the better class of cattle from the neighboring States are being brought into this State for sale. Assuming that the average condition of the cows in the neighboring States is the same as throughout this Commonwealth, the natural result of this will be that the poorer cattle, including the known consumptives, will be left at home, to become to some extent the natural sources of our foreign milk supply.

A careful consideration of this matter will show that no absolute protection in this direction can be afforded to our people unless the sale of milk and similar products within this State, but derived from animals from without its limits, is regulated in some more efficient manner.

One difficulty of this problem is the question of how far any proper regulation to correct this evil would be an unlawful interference with interstate commerce. The possibilities of successfully enacting such a law is shown by the fact that the supreme court of the United States has recently sustained the law of this Commonwealth regulating the sale within its limits of oleomargarine colored in imitation of butter which has been manufactured without its limits.\*

On the other hand, the difficulty of the problem may be appreciated by considering the fact that the same court held that the following statute of Indiana was unconstitutional, as an unlawful interference with interstate commerce. †

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana,* That it shall be unlawful to sell, or offer or expose for sale, in any incorporated city within this state, beef, mutton, veal, lamb or pork for human food, except as hereinafter provided, which has not been inspected alive within the county by an inspector or his deputy duly appointed by the authorities of said county in which such beef, mutton, veal or pork is intended for consumption, and found by such inspector to be pure, healthy and merchantable; and for every such offence the accused, after conviction, shall be fined not more than two hundred dollars nor less than ten dollars.

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\* *Commonwealth v. Plumley*, December, 1894    † *Minnesota v. Barber*, 136 U. S. 313.

## GLANDERS.

While the main work of the commission has been devoted to tuberculosis, considerable work has also been done on the matter of glanders and farcy. Almost the entire time of Commissioner O'Connell has been consumed in going over the State in response to the numerous calls of the local inspectors and others to examine reported cases of glanders and farcy. The method pursued in the case of this disease is the same as heretofore. During the past year the office has received reports of two hundred and thirty animals suspected of being affected with glanders or farcy. All of these have been attended to, and as a result one hundred and sixty animals have been condemned and destroyed. This disease has been found in the past year in the following cities and towns: —

Amesbury,	Grafton,	North Westport,
Arlington,	Greenfield,	Norwood,
Ashland,	Harvard,	Peabody,
Bedford,	Haverhill,	Rock Bottom,
Belmont,	Holyoke,	Salem,
Boston,	Hopkinton,	Somerset,
Brookline,	Huntington,	Somerville,
Brockton,	Lawrence,	Stoneham,
Cambridge,	Leominster,	Stoughton,
Canton,	Lexington,	Southbridge,
Chelmsford,	Ludlow,	Springfield,
Chelsea,	Lynn,	Stow,
Chicopee,	Malden,	Swampscott,
Concord,	Marlborough,	Taunton,
Dudley,	Melrose,	Tewksbury,
East Bridgewater,	Methuen,	Westborough,
Everett,	Millbury,	West Boylston,
Enfield,	Needham,	West Bridgewater,
Foxborough,	Newton,	Westport,
Franklin,	Northampton,	Whitman,
Gardner,	Northborough,	Worcester.

In the report of the commission of last year the attention of the Legislature was called to the fact that there was no adequate provision for inspecting animals suspected of being affected with glanders or farcy, the law of that time as to the inspection of animals applying only to tuberculous cattle; and they recommended that the law be changed so as to direct that the local

inspectors of cattle should also examine any horses that for any reason they may at any time suspect of having glanders or farcy. This recommendation was favorably acted upon by the Legislature, and was incorporated in section 4 of the Acts of 1894, which provided that the inspectors "shall also make, from time to time, inspections of all other domestic animals within the limits of their several cities and towns, whenever they have knowledge or reason to suspect that such animals are affected with or have been exposed to any contagious disease;" and the Board feel that the fact that glanders is now reported from a larger number of localities is because the local inspectors have been on the lookout for this disease. The owners of horses killed as being glandered receive no compensation for animals destroyed, the law in this respect being the same this year as heretofore.

The great difficulty in getting rid of glanders lies in the fact that it does not always declare its presence in the animal certainly and surely, and that, even when an animal is known to be affected, he is not reported or otherwise safely disposed of, because he is very frequently able to work satisfactorily, and the owner does not care to become a public benefactor to the extent of the amount invested in the animal. This, however, probably always arises because the danger to the lives and property of others is not fully appreciated by him. There is considerable reason for believing that before much longer, and by the help of an agent called mallein, we shall be able to make as safe and sure a diagnosis in the presence of this disease as we are now able to make in the presence of tuberculosis; and when this time comes, as it probably will in the very near future, this problem will become infinitely less complex, and we shall be able to afford Massachusetts horse owners a practical immunity from a disease which has for years been a very costly one to them.

There have been no outbreaks in this State, so far as the Board has knowledge, of other diseases mentioned in the act, except some small amount of hog cholera, of which twenty-five outbreaks in as many herds have been reported and quarantined. Whenever notice of an outbreak of this kind is received, a letter is written to the inspector of the town in which it has occurred,



giving him full directions as to how the herd should be managed. The sick animals are ordered to be carefully separated from the diseased ones, certain other sanitary precautions are advised, and the matter is then left to the management of the local inspector and the owner of the herd in which the outbreaks have occurred. As this is a curable disease, the commission believes that such a procedure as this one is all that is required.

#### LABORATORY.

Since October, 1892, the Board have constantly felt the need of having a pathological examination made of certain portions of animals that have been sent to them from the different inspectors throughout the State; questions that could not be answered except as a result of laboratory examinations of such portions; and it has been their custom since that time to refer all questions of this sort to Professor Whitney at the pathological laboratory of the Harvard Medical School. As the work has gone on, the number of these examinations that it was found necessary to have made increased considerably, so much so that under former arrangements the entailed expense was becoming considerable. In view of this fact, together with the fact that a great deal of valuable time was lost in sending specimens over to the laboratory and in receiving replies concerning them, it was determined by the Board to establish a laboratory which should be entirely under its own control, and the third floor of the building in which their offices are located was obtained, and has been fitted up for this purpose.

#### PAYMENT FOR ANIMALS DESTROYED.

One of the most important provisions in the law enacted by the Legislature in 1894 relates to the payment of compensation to the owners of neat stock which are destroyed by order of this Board as affected with tuberculosis. This provision involves a radical change in the policy of the State in these matters, growing out of a better understanding of the hardships which the agricultural citizens of this State might suffer when radical measures for the suppression of this disease were put into operation, in consequence of the enactment of the law of 1894. The portion of the law of 1894 relating to this matter

is contained in section 45 of chapter 491 of the Acts of 1894, which is as follows : —

When the board of cattle commissioners or any of its members, by an examination of a case of contagious disease among domestic animals, becomes satisfied that the public good requires it, such board or commissioner shall cause such animal or animals affected therewith to be securely isolated, at the expense of the owner, or shall cause it or them to be killed without appraisal or payment. Such order of killing shall be in writing and may be directed to the board of health, inspector, or other person, and shall contain such direction as to the examination and disposal of the carcass, and the cleansing and disinfecting of the premises where such animal was condemned, as such board or commission shall deem expedient. A reasonable sum may be paid out of the treasury of the Commonwealth for the expense of such killing and burial. If it shall subsequently appear, upon post-mortem examination or otherwise, that such animal was free from the disease for which it was condemned, a reasonable sum therefor shall be paid to the owner thereof by the Commonwealth : *provided, however*, that whenever any cattle afflicted with the disease of tuberculosis are killed under the provisions of this section, one-half of the value thereof at the time of slaughter for food or milk purposes, and without taking into consideration the existence of such disease, shall be paid to the owner thereof out of the treasury of the Commonwealth, if such animal has been within the state six months continuously prior to its being killed, provided such person shall not have, prior thereto, wilfully concealed the existence of tuberculosis, or by act or wilful neglect contributed to the spread of such disease.

The portion of this section which provides for the payment of tuberculous animals without taking into consideration the existence of the disease was new to the laws of this Commonwealth. As this act came into operation the 20th of last June, this report of the commission also embraces a period from Dec. 15, 1893, to June 20, 1894, when it was operating under a law, being chapter 306 of the Acts of 1893, which provided, in section 2, —

When any member of the board of cattle commissioners, by an examination of a case of contagious disease among domestic animals, becomes satisfied that the public good requires it, he shall cause such animals to be securely isolated at the expense of the owner, or he shall cause them to be killed without appraisal or payment ; but may

pay the owner or any other person an equitable sum for the killing and burial thereof, and may also pay a reasonable sum for the animal destroyed, should it appear by post-mortem examination or otherwise that said animal was free from the disease for which it was condemned.

Under this law of 1893, which specifically included tuberculosis as among contagious diseases, the entire work of the commission in this matter was in response to calls from the local inspectors to examine animals which were reported as quarantined, suspected of being diseased. In this way it condemned as tuberculous 529 animals, for which no compensation was paid to the owner. Since the passage of the act of 1894 the commission has approved the payment for 810 cattle, condemned and destroyed as tuberculous, in the total sum of \$15,280.45, making an average payment of \$18.86 per head. As this was simply the payment of one-half of the value for milk or beef purposes, which had either been agreed upon or valued by arbitrators, as provided in the act, it means that the total actual value for milk or beef purposes of these animals was \$37.72, and that the difference between this value and that paid by the State, on the theory that the animals at the time of slaughter are worth to the owner their value for milk or beef purposes, has been borne by the owner of the animals destroyed.

This section of the law of 1894 is somewhat restricted in the matter of the payment of compensation, and, as this commission has experienced in its application in the field more or less misunderstanding as to its meaning, and under what circumstances the owner receives compensation, it feels that it should make an explanation as to the construction placed upon it by the commission in practice.

It must be remembered, as before stated, that prior to the passage of this act no compensation under any circumstances was paid to the owner for animals destroyed as affected with any of the contagious diseases mentioned in the act.

The act of 1894 leaves the law, in all cases except tuberculosis, unchanged; and therefore, in case of animals destroyed as affected with any of the other diseases mentioned in the act, there is no appraisal, and the owner receives from the Commonwealth no compensation; as, for instance, in the case of a horse destroyed as affected with glanders or farcy, no discretion

is vested in the commission, and in no case does the owner of such animal receive any payment for such animal, even though the horse may be one of great value, no matter how long he may have been owned within the State, or how innocent such person may have been in its purchase, or how careful he may have been to guard against its exposure to such contagion.

As to all cases, however, of animals destroyed under the provisions of this act where it is subsequently shown by post-mortem examination or otherwise that the animal condemned was not afflicted with the disease for which it was destroyed, the owner receives the actual value of it from the Commonwealth. While this provision for payment of the actual value of such animal has been the law for two years prior to the passage of the 1894 act, no provision was made in these acts as to how the owner could recover the value of such an animal if the commission or one of its members maintained that the animal was diseased. The commission in its report of last year therefore recommend that some simple provision be made which should give the owner the right to appeal from the decision of this Board, and have the matter of the existence of the disease determined by a disinterested tribunal. An adequate provision for this purpose was therefore made in section 46 of this act, by a petition to the superior court; and thus every person is given a fair opportunity to appeal from this Board to determine in every case whether any animal destroyed by it is actually diseased or not. The commission deem it important that the existence of this provision be kept in mind, because, since the adoption of the tuberculin test by it, which has been discussed in this report, complaints have been brought to the attention of the commission that it is using an unreliable test, and, relying solely upon it, animals which are in fact entirely free from the disease are being killed, and that thus the owner is receiving only half of its value for limited purposes, or even in some cases no value whatever; yet no owner of any animal destroyed has, up to the making of this report, ever brought any action under this provision to review the decision of this Board, and this in itself the commission feel is a strong endorsement of the accuracy of this test.

This provision as to the payment for tuberculous cattle authorizes the payment of "one-half value thereof at the time

of slaughter for food and milk purposes, and without taking into consideration the existence of such diseases, if the animal has been within the State six months continuously prior to its being killed.”

Again, sections 17 to 22 of the law of 1894, which have been fully discussed previously in this report, provide for the inspection of animals which are slaughtered for food. In the case of these inspections, the existence of the disease is pronounced only upon a post-mortem examination of the carcass after death by the local inspectors. If the carcass is found to be tuberculous, it is immediately destroyed by the inspector without this Board's examining such carcass to pronounce upon the existence of the disease. While this Board does not, therefore, act directly in the matter, it is true, of course, that the matter of these inspections is conducted under the general supervision of the Board, and in such manner as this Board directs. The owner of all such carcasses destroyed receives no payment from the State for them, although the animal may have been within the State six months prior to its being killed, although it may have been born and bred here, and although the owner may have exercised every precaution and taken every step reasonable and proper to ascertain the existence of the disease. Under this section of the act this Board has received the reports of the destruction of two hundred and fifty carcasses as tuberculous. This number is not a fair criterion at all of the number of such carcasses throughout the State, for the reason that the returns of such inspections to the office are very imperfect; but the comparatively small number of such carcasses destroyed leads the commission to feel that the result of the passage of this portion of the act has been satisfactory, and that those persons who previously have been in the habit of slaughtering tuberculous cattle and selling the meat from the same have been obliged to abandon this business.

This act does not permit the payment for cattle destroyed by order of this commission unless the animal has been within the State six months continuously prior to its being killed. Under this provision the commission have required that before the payment for any such animal should be approved the owner should make oath to the fact of such six months' residence. The form of this oath will be found appended as a part of Form for killing tuberculous cattle.

There are many farmers in this State who pasture their cattle during portions of the summer across the line in neighboring States; in which case, although the person may have owned the animal for years, although it may have been bred in this State, no compensation is paid unless the animal has been in the State six months continuously since its return from such pasturage.

The act further provides that the owner shall only receive compensation for such animals if he "shall not have prior thereto wilfully concealed the existence of tuberculosis, or by act or wilful neglect contributed to the spread of such disease."

The Board as yet have not refused the payment for any cattle destroyed as tuberculous where otherwise they came within the provisions in this section; because it is extremely difficult to ascertain whether the owner has wilfully concealed the existence of tuberculosis, or by act or wilful neglect has contributed to the spread of the disease. It is true, of course, that to a certain extent the owner by bringing cattle from different points together into one herd does "by act contribute to the spread of the disease," if in fact any such animals are diseased; but this commission has not felt such a literal construction was the intention of the Legislature, but rather that this provision was intended merely to prevent the owner receiving compensation where he fraudulently or wilfully exposed his animals to contagion for the purpose of obtaining payment from the Commonwealth.

In regard to the amount of the compensation which is paid for animals destroyed as tuberculous, the commission feel that a word of explanation should be given. The act provides that where the animal is in fact tuberculous "one-half of the value thereof at the time of slaughter for food and milk purposes, and without taking into consideration the existence of the disease, shall be paid to the owner thereof," etc. The majority of the cattle destroyed as tuberculous by this commission have no greater value than for food or milk purposes; but, on the other hand, there are many herds of cattle in this State in many of which tuberculosis has actually been found present, and where, therefore, many of the cattle have been destroyed; and there are also many others where the commission have reason to believe a systematic examination by tuberculin, such as contemplated by them, will prove the disease to be present where the

animals have a value greatly in excess of that for food or milk purposes. These are fancy-bred, high-grade and registered animals. In case such animals are destroyed by the commission, while they may possibly have a health value of \$500 or even \$1,000, the owner receives one-half of the value, without taking into consideration any of these special elements.

While this is the basis of valuation in case the animal proves to be diseased, a different basis of valuation is adopted where the animal is found free from disease. The reason for this difference is as follows: If the animal is diseased, the owner only receives such a value therefor as is provided by the statute. It is a value based only upon the milk or beef basis; but where the animal is not diseased, the statute simply provides that "a reasonable sum therefor shall be paid to the owner by the Commonwealth."

The reason for this distinction is that, if the animal is free from disease, it is property taken for the public good, and the owner, under the constitution, is entitled to the value thereof; and in ascertaining that value, as in the case of all other property, all facts tending to give the animal a market value must be taken into consideration, — its pedigree, breed, elements of peculiar value and everything which would have influence upon the mind of a buyer in determining the price which he would pay. Hence, in practice, where the animal is free from disease, the appraisal is entirely disregarded.

Some doubt has arisen in practice as to the exact method of determining the value of tuberculous animals under the provision of the act. The act provides that "*one-half the value thereof at the time of slaughter for food or milk purposes, and without taking into consideration the existence of such disease, shall be paid,*" etc.

When this section was drawn, it was the intention of the commission, and it was also understood to be the intention of the agricultural committee and the Legislature, that this should simply mean that the basis of value of the animal for payment by the State should be the animal with all her apparent infirmities as she stood at the time of slaughter, simply disregarding the fact that she was then afflicted with the contagious disease of tuberculosis. Appraisers, however, have very largely placed a different construction upon this

clause of the statute, claiming that this means that the basis of valuation for such payment is the value of the animal as she would be had she never suffered from the disease. Take, for example, the case of a tuberculous cow which has been subject to the disease for years, whose tissues have been destroyed by it, which has become a bad cougher, has ceased to yield milk to any great amount, is so thin as to be practically valueless for beef purposes, which in fact is in the last stages of the disease, and is what is known as a "frame,"—such an animal in the market, for milk or beef purposes, if the disease was not known, would bring possibly five to seven dollars; whereas, if we are to assume as a basis of valuation for payment by the State that not only the actual existence of the disease at the time of slaughter is to be disregarded, but also the effects produced upon the animal itself because of its having been long a subject to it, the animal would be valued at forty or fifty dollars, because, had she never had the disease, she would be a good, fat cow. The commission feel that this latter is not the fair construction to be placed upon this act, or the wise policy to be pursued where compensation is to be paid upon a health basis; and they therefore recommend, if this section is to be construed to mean that the State is to pay for the animal as though it had never been diseased, that it be so amended as to limit it so that the valuation to the State shall not be different from that of the animal in the open market.

We have thus briefly stated the provisions of the law of 1894 under which this Board has acted since June 20, and the practical construction placed upon the act by this Board in its application to the work which it has been conducting since that time.

The matter of the payment by the State to the owners of animals destroyed, on a basis of health, is so new to the law of this State, and, on account of the great increase in the destruction of animals and the different class of animals which are reached through the tuberculin test, is so important, this commission feel that your honorable body should carefully consider the matter of this payment, and determine, in view of this complete change of conditions, the question of what payment should be made to the owners of animals destroyed as best for the interest, not only of such owners, but for all of the citizens of the Commonwealth. This matter has been given considerable



attention not only in this State but by other States, and the policy pursued in this direction has varied considerably. There are, briefly speaking, four solutions of this problem which have been adopted or seriously advanced:—

*First.*—The destruction of all animals found actually infected, without any appraisal and without the payment of any compensation.

*Second.*—The payment to the owner of the actual value of the animal at the time of slaughter, based upon an appraisal which shall take into consideration the existence of the disease and all other elements of value.

*Third.*—The payment of one-half apparent or health value of the animal on a limited basis, disregarding the fact that it is affected with tuberculosis.

*Fourth.*—The payment of the full value of the animal, ascertained in the same manner.

The Board, in order that it may assist as far as possible, your honorable body in arriving at a conclusion as to which of these methods you will adopt, have endeavored to gather together as much material as was practicable bearing on the subject. This may be divided into three classes:—

*First.*—The history of the law in this State on the matter of compensation of animals destroyed as affected with a contagious disease.

*Second.*—The arguments which are advanced for and against the several propositions.

*Third.*—The laws of other States and jurisdictions bearing upon the matter of the suppression of these diseases.

#### HISTORY OF THE LAW IN THIS STATE.

The law of this State on the matter of compensation directly applying to tuberculosis is extremely recent, for the reason that until 1892 tuberculosis was not treated by the Board of Cattle Commissioners as a contagious disease, and was not specifically included among the list of such contagious diseases under the laws of this Commonwealth. This State, however, has for more than thirty years enacted laws for the purpose of suppressing, from time to time, outbreaks of contagious diseases among the lower animals within its limits.

The first serious attempt to cope with any such diseases was

in connection with the suppression of contagious pleuro-pneumonia. This was imported into this State about the year 1857, and spread so rapidly and became such a serious menace to the health of the neat stock that in 1860 this State found it necessary to legislate on the subject. In that year it passed an act (chapter 192) authorizing the governor to appoint three commissioners, who "shall have full power to cause all cattle belonging to a herd in which the disease has appeared or may appear, or which may have belonged to such herds since the disease may be known to have existed therein, to be forthwith killed and buried," etc. Section 2 of this act provided:—

The commissioners shall cause all cattle in the aforesaid herds *not appearing to be affected by the disease* to be appraised before being killed *at what would have been their fair market value if the disease had not existed*, and the value of the cattle thus appraised shall be allowed and paid out of the treasury of the Commonwealth to the owner or owners thereof.

On account of the fact that contagious pleuro-pneumonia spread so rapidly, and from the knowledge of its dissemination, it was felt that the only safe course to be pursued to stamp it out was not only to destroy the animals which showed upon a physical examination that they were suffering with the disease, but also to destroy all others which were brought into the sphere of contagion; feeling that it was much better for the public welfare that healthy animals might possibly be slaughtered, than that those which had within them the seeds of disease should be allowed to go at large and thus scatter the germs. No reliable agent was known or used to determine with accuracy the existence of this disease in any given animal. Reliance had to be solely placed upon the external symptoms of the disease, determined by physical examination. Under this act, therefore, from the external evidence, the animals destroyed were divided into two classes,—those which were evidently diseased, and those which were apparently sound but possibly might have the disease within them. In regard to these two classes the State adopted a different policy as to the payment of compensation.

In the case of animals which could be demonstrated as affected, no compensation was paid. In such animals, how-

ever, the disease had so advanced and its development was so rapid that in the natural course of events the animal would soon die from the effects of the disease itself.

In the case of the animals which were destroyed because of their possible exposure to infection, the State paid the full health value. The reason for this distinction as to the payment was not that in one case the public good required it and the other not, or that in one case it was a hardship upon the owner and in the other case not, but was upon the basis that in the case of the animal diseased it was a public nuisance and menace to the public health and to a vast amount of money invested in the neat stock throughout the State, and was so affected with the disease as to become actually worthless. In the other class of animals, however, it was impossible to demonstrate the existence of the disease, and it could not be proved that in any particular case the animal was actually infected, and therefore that that particular animal was a public nuisance. The destruction of such an animal was fairly within the clause of the constitution which provides that "whenever the public exigencies require, that the property of any individual should be appropriated to public uses, he shall receive a reasonable compensation therefor."

This law in the case of contagious pleuro-pneumonia gave greater powers to the commission than those vested by the present law in this Board, for that authorized the destruction of animals simply because of their exposure to a disease, whereas in the case of the present law this Board must determine in each case the existence of the disease; and yet the Legislature considered that when the State was threatened with so great an evil as that, the adoption of so rigorous a policy was the only practical means of stamping out the disease. The result has justified their expectations. By the adoption of these measures this dreaded disease was absolutely stamped out in this State, and for twenty-seven years not a case has been known within the limits of the Commonwealth.

Different measures were adopted in other States, where it was attempted to eradicate the disease by the destruction only of such animals as plainly showed that they were affected with the disease by a physical examination. This method only resulted in its wider spread, and it finally took years of persistent effort,

the expenditure of vast sums of money, and finally the adoption of Massachusetts methods, before the disease was stamped out. As a result, not a case of this disease exists on this continent.

About two months after the passage of this contagious pleuro-pneumonia act, the same Legislature, on June 12, 1860 (chapter 221), authorized an increase of the Board of Commissioners from three to five, and gave them power over "pleuro-pneumonia or any other contagious disease now existing among the cattle of the Commonwealth." The law was not otherwise substantially varied, and the rule as to compensation was left unchanged, except that it was provided that "the appraised value of such cattle shall be paid, one-fifth by the cities or towns in which said cattle were kept, and the remainder by the Commonwealth."

After the passage of this act the law remained substantially unchanged until 1878. Contagious pleuro-pneumonia had long before this been stamped out in the Commonwealth. Tuberculosis at this time had not been considered by scientists as a contagious disease, and therefore was not so considered or treated either by the law or this commission. Prior to this the powers of the commission were limited to diseases *in cattle*. As a practical question, therefore, there were no diseases in the State calling for their active intervention or over which they had control for years before the matter of glanders was taken up.

In 1878 (chapter 24) an act was passed providing that:—

The selectmen of towns, the mayor and aldermen of cities and the cattle commissioners of this Commonwealth shall have and may exercise the powers and shall be subject to the duties for the prevention of the diseases known as farcy and glanders among horses, asses and mules, and for the prevention of contagious and infectious diseases among domestic animals that are now conferred or imposed upon them by the laws relating to the prevention of contagious diseases among cattle.

Otherwise the law was left the same as previously. No special provision was made in this act as to the matter of compensation. As cases of glanders were to be destroyed under the same circumstances as pleuro-pneumonia, the act called for the destruction of animals actually diseased without the payment of compensation, and apparently authorized the destruc-

tion of animals which had been exposed to the disease, and where the disease could not be proved to exist; but in such case full health value would have to be paid, as in the case of pleuro-pneumonia.

In the following year, 1879, the matter of compensation for glandered horses was given special attention, and an act was passed (chapter 160) which provided:—

SECTION 1. In all cases of glanders or farcy, the appraisal of the animal so diseased *shall be based on its value in its diseased condition*, and the appraisers shall be the following persons: first, one member of the board of commissioners on contagious diseases among cattle; second, one veterinary surgeon selected by said commissioner; third, one reputable person who may be selected by the owner of the animal if he choose to do so, otherwise the two appraisers above-named shall select the third.

This was the first act in this Commonwealth distinctly providing that diseased animals should be appraised, and that the value of such appraisal should be the actual value on the assumption of its having the disease. The commission operated under this act for two years. Experience showed that a glandered horse, if the existence of the disease was taken into consideration, had absolutely no value, and that therefore the machinery of an appraisal yielded the owner no benefit, and merely caused delay and unnecessary expense to the State.

Accordingly, in 1881 (chapter 184) this act was repealed, and in its place was substituted:—

SECTION 1. In all cases of glanders or farcy, the commissioners on contagious diseases among cattle, having condemned the animal infected therewith, *shall cause the same to be killed without appraisal*, but may compensate the owner thereof in such equitable sum as shall pay for the killing and burial of the same.

The entire matter of contagious diseases was again considered by the State at the time of the passage of the Public Statutes, and the law on the matter was codified into chapter 90. This act gave the mayor and aldermen of cities and the selectmen of towns the right, —

. . . in case of the existence in this Commonwealth of the disease called pleuro-pneumonia among cattle, or farcy or glanders among

horses, or any other contagious or infectious diseases among domestic animals, —

to quarantine the suspected animals, to cause them to be examined by a veterinary surgeon or physician, and if adjudged to be infected, to cause them to be killed. Section 3 of the act provided that such boards —

. . . may cause all such animals to be appraised by three competent and disinterested men under oath, *at the value thereof at the time of the appraisement*, —

and such value was to be paid one-fifth by the city or town and four-fifths by the Commonwealth.

While, therefore, the law of 1882 theoretically authorized the payment of the diseased value, as has already been stated, practically, if the disease was taken into consideration, such value did not exist.

In 1885 (chapter 148) the law on the matter of compensation was again amended by providing in section 3 that, when the mayor and aldermen in cities or the selectmen in towns destroy an animal that is affected with contagious disease, —

. . . they may cause *all such animals except those infected with glanders or farcy to be appraised* by three competent and disinterested men, under oath, *at the value thereof at the time of appraisement*, and the amount of the appraisement shall be paid as provided in section one. *They shall cause all animals infected with glanders or farcy to be killed without appraisement*, but may pay the owner an equitable sum for his services in the killing and for any reasonable expense incurred by the burial thereof.

As a result of this act, therefore, appraisal in the case of glanders and farcy was done away with; in the case of all other diseases the actual value, if any, at the time of slaughter, was paid. As, however, the main efforts at that time were directed to the stamping out of glanders and farcy under the law as practically operated, no compensation was paid.

In the same year (chapter 378) an act was passed creating the present Board of Cattle Commissioners, except that it has since been enlarged by the act of 1894 from three members to five. The Board then created until 1887 worked under the laws

contained in the Public Statutes, as amended by the act already cited.

In 1887 the entire matter of contagious diseases was again given attention by the Legislature, and resulted in the passage of an act (chapter 252) repealing the previous laws. This act of 1887, with some slight amendments, was the law under which this commission worked until the passage of the act of last year. The sections of this act relating to compensation are 12 and 13:—

SECT. 12. The commissioners, when in their judgment the circumstances of the case and the public good require it, may cause to be killed and buried any domestic animals which are infected with or have been exposed to contagious disease, and *except as provided in the following section shall cause such animals to be appraised* by three competent, disinterested men, under oath, *at the fair value thereof in their condition at the time of appraisement*, and the amount of the appraisement and necessary expense of the same shall be paid as provided in section one [*i. e.*, one-fifth by the city or town and four-fifths by the Commonwealth].

SECT. 13. When the commissioners, by an examination of a case of contagious disease among domestic animals, *become satisfied that it has been contracted by intention or negligence* on the part of the owner or the person in his employ or by his consent, or by the use of food materials liable to contain the germs of contagion, they shall cause such animals to be securely isolated at the expense of the owner, or *they shall cause them to be killed without appraisal or payment*, and *in all cases of farcy or glanders the commissioners having condemned the animal infected therewith shall cause such animal to be killed without an appraisal*, but may pay the owner or any other person an equitable sum for the killing and burial thereof.

Under this law, as before in the case of glanders and farcy, the appraisal was dispensed with and no value was paid. In all other cases, provided the disease was not due to his wilful or negligent act, the owner received the actual value of the animal, taking into consideration the disease. But here again it must be remembered that substantially the only disease then being considered was glanders and farcy.

This law remained unchanged until 1892. In this year for the first time tuberculosis was treated as a contagious disease. Under all the laws prior to this, although in theory tuberculosis

was included because it was a contagious disease, as a matter of fact it was not so treated by this Board. We have already stated that tuberculosis in cattle is identical with consumption in a human being. The true nature of this disease and its communicability was not discovered until 1882, when Koch first found it to be a germ disease. No government attempted to include it among contagious diseases in animals until France so placed it in 1887.

In 1892 this Board came to the conclusion that it was a menace to the public health, and that steps should be taken to prevent its further spread; and accordingly it recommended to the Legislature of that year the passage of an act which should provide some systematic method of locating the animals which were affected by the disease; and accordingly an act was passed entitled "An act to prevent the spread of tuberculosis" (chapter 195), which provided for the appointment of inspectors throughout the State, giving them power to —

. . . inspect all animals kept for the production of milk, and shall report to the board of cattle commissioners all suspected cases of tuberculosis which come to their notice, among animals intended for slaughter or kept for the production of milk.

This act further amended section 13 of the act of 1887 by providing that, —

*In all cases of tuberculosis, farcy or glanders, the commissioner having condemned the animal infected therewith, shall cause such animal to be killed without an appraisal, but may pay the owner or any other person an equitable sum for the killing and burial thereof; and may also pay a reasonable sum for the animal destroyed, should a post-mortem examination prove that said animal was free from the disease for which it was condemned.*

The law which was in force at the time this act was passed authorized the destruction of diseased animals without appraisal or payment; it was but natural, therefore, that, as soon as it was realized that tuberculosis was a contagious disease, which should be eradicated if possible, the same policy should be adopted as in the case of glanders, especially because at this time the methods pursued in determining the disease were identical with those of glanders; that is, in both cases reliance



was solely placed upon a physical examination. The animals condemned by the commission were those reported by the local inspectors as affected with the disease, and therefore consisted only of animals where the disease had so far advanced as to give external evidence satisfying persons of ordinary skill that they were affected with the disease. When the disease had so far advanced as to give these external symptoms, it had in a great majority of cases so destroyed the tissues of the body and so robbed the animal of its vitality, that, looked at from every stand-point, not only because of its danger to the public health but as a mere money-making machine, it was practically valueless. It was but natural, therefore, that the law should dispense with the unnecessary machinery of appraisal, and that such animals should be classed in the same category with glandered or farcied horses.

For the first time in the laws on this matter this act provided that, where it should subsequently appear that the animal was free from disease, the owner should receive the full value. This change in the law was the result of a decision of the supreme court in this State in a case where this Board ordered a horse killed in Rehoboth as affected with glanders under the provision of the law, without appraisal or payment. The owner claimed that his animal was free from the disease, and sued the constable who acted under the authority of this Board for the value of the animal, claiming that he had no right under such an order to destroy an animal which was actually sound. The court in this case carefully reviewed the law, and stated that this section which authorized the destruction of glandered horses without compensation “by implication declares horses with the glanders to be nuisances, and we assume in favor of the defendant that it may do so constitutionally, and may authorize them to be killed without compensation to the owners;” but the statute does not declare all horses to be nuisances, and, as a result, the court decided that, while the Legislature might properly cause animals actually diseased to be destroyed, it could not deprive a man of a healthy animal for the public good without paying the value; that, as to the destruction of such animals, it came within the provision of the constitution, and that, as it was taken for the public good, the owner must receive the value. (*Miller v. Horton*, 152 Mass. 540.)

In 1893 (chapter 306) both of the previous compensation sections were consolidated into one which provided, —

SECT. 2. When any member of the board of cattle commissioners, by an examination of a case of contagious disease among domestic animals, becomes satisfied that the public good requires it, he shall cause such animals to be securely isolated at the expense of the owner, or he shall *cause them to be killed without appraisal or payment*, but may pay the owner or any other person an equitable sum for the killing and burial thereof, and may also pay a reasonable sum for the animal destroyed, should it appear by a post-mortem examination or otherwise that said animal was free from the disease for which it was condemned.

This act also, for the first time, defined the contagious diseases : —

SECT. 3. Contagious diseases within the meaning of this act shall include glanders, farcy, contagious pleuro-pneumonia, tuberculosis, Texas fever, foot and mouth disease, rinderpest, hog cholera and rabies.

This law placed all diseases on the same footing, did away with the appraisal in every case, and required that in no case should an owner receive any compensation.

From this brief examination of the history of the law prior to the passage of the act of last year, it is apparent that the general tendency of the law had been uniformly in the direction of the payment of no compensation. This Board did not adopt the tuberculin test until long after the passage of the law under which it is now operating. When, therefore, this commission made its report to the Legislature in 1894, its experience was entirely based upon physical examinations, condemning only such animals as clearly demonstrated that they were affected with tuberculosis, and which generally had ceased to have any apparent earning capacity; and when, therefore, it advised a thorough revision of the law relating to contagious diseases among domestic animals, it did not feel that it could recommend a change in the law on the matter of compensation, until, at least, it had ascertained by experience the practical effect of the law which it recommended.

In the bill submitted by it, therefore, the matter of compen-

sation was left as before, except that it recommended the making of some adequate provision whereby the owner should have by a simple method the power, if he so desired, to appeal from the decision of this Board to some disinterested tribunal, which might determine whether or not in each particular case the animal condemned was in fact affected with the disease.

In addition to the bill submitted by this Board three other bills were submitted, bearing on the matter of the compensation to be paid to the owner. One of these bills provided : —

SECT. 11. A reasonable sum may be paid out of the treasury of the Commonwealth for the expense of such killing and burial and *one-half of the actual value of the animal for food or milk purposes, if in health. . . .* If the cattle commissioners or their agents or owners of such animal or animals cannot agree on the fair cash value, it shall be determined by appraisal of three disinterested persons to be mutually agreed upon ; *but no payment shall be made on any animal not owned within the state six months prior to its being killed, or to any person who has wilfully concealed the existence of tuberculosis, or who, by act or wilful neglect, has contributed to the spread of the disease.*

The second act provided in section 2 that it shall be the duty of the commission, —

. . . also to cause a disinterested appraisal of the animal or animals affected with the said disease in accordance with such rules and regulations by them as hereinafter authorized and provided, and also to cause the said animals to be destroyed, and *to pay the owner or owners thereof one-half of their value, as determined upon the basis of health before infection,* out of any moneys in the treasury not otherwise appropriated : *provided, however, that no appraised value shall be more than one hundred dollars for any animal killed ; and provided, further,* that in no case shall compensation be allowed for an animal destroyed under the provisions of this act which may have contracted or been exposed to such diseases in a foreign country or on the high seas, *or that may have been brought into this state within one year previous to such animal showing evidence of such disease ;* nor shall compensation be allowed to any owner who in person or by agent knowingly or wilfully conceals the existence of such disease or the fact of exposure thereto in animals of which the person making such concealment by himself or agent is in whole or in part owner.

The third bill provided, in the case of all animals diseased, that —

If it appears that the animal killed by order of the board was diseased, a sum may be allowed by said board to the owner not exceeding half the amount which would have been allowed if said animal had been free from disease.

There was, therefore, before the Legislature of last year no bill or petition requesting the payment of full health value. This Board, however, in its report of that year, recommended that, —

If indemnity is to be paid at all, it should be full. Half measures produce generally half results; and if it were possible to limit the expenditure in this direction to within proper bounds, it might safely be considered that the benefit to the community would offset its cost to them.

After a careful consideration of our report and these several bills, the committee on agriculture reported the law which subsequently became chapter 491 of the Acts of 1894.

#### ARGUMENTS FOR AND AGAINST COMPENSATION.

*First.* — *The destruction of all animals found actually infected*, without any appraisal and without the payment of any compensation.

Those in favor of this position assert that the policy of this State for the past thirty years until the passage of the act of last year is in favor of this proposition. They further say that such a course is constitutional, because, by the destruction of diseased animals without compensation, the State is not depriving any person of his property without compensation; that such a diseased animal has no actual value; that, because the beef and milk products from such an animal are a great source of danger to human beings, the owner should not be allowed to keep it; that the Legislature may properly declare that such an animal is a public nuisance, and require it to be destroyed without compensation; and in support of this they cite the decision of the supreme court in the case of the glandered horse before referred to,\* where the court stated that it assumes that the Legislature may constitutionally declare such horses to be public nuisances, and “may authorize them to be killed with-

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\* *Miller v. Horton*, 152 Mass. 540.

out compensation to the owner," and claim that, as this course has been held constitutional, it is unwise to depart from it. They further say that in matters of public health the policy of the State generally has been for the owners to bear all the burdens; citing the laws requiring that persons infected with contagious diseases may be quarantined and required to pay the entire expense, that lunatics may be confined at their own expense or that of their relatives, that owners of property may be required to bear the expense of disinfection, that owners of orchards attacked by the gypsy moth may have them destroyed without payment, or that owners of houses may have them pulled down under the same circumstances, to prevent the spread of fire. They claim that, in the case of diseased animals, the reason in favor of the destruction of such animals without compensation is, that there is no cure or preventive which can be successfully used when once the animal is affected; that not only will such disease ultimately destroy the animal, but that such animal will be the centre of infection, and spread the disease among others not only of their kind but among human beings; and that therefore the loss which the owner suffers is not due directly to their destruction by the State, but to the fact that the animal has contracted the disease, and that such destruction by the State is merely the removal of a worthless thing. They further assert that, while the public gain a benefit by the destruction of such animals, the direct benefit in the first instance, at least, is to the owner of such stock; because if such diseased animals are allowed to remain they will eventually contaminate the whole herd, with the result, therefore, that the owner loses not only the one or two affected animals, but possibly all the animals in his barn; and that when the State undertakes, without expense to such owner, a careful and thorough examination of his stock, and by that examination to remove all sources of contagion and thus enable the owner to save the lives of all the balance, it is bearing its just proportion of the expenses; and, finally, they assert that, as these diseased animals are in fact worthless, the payment of anything to the owner for such animal is not a compensation for property destroyed, but is a gift by the State in exchange for something which is worthless, and will encourage the surreptitious introduction into this State of diseased animals from other localities;

and that thus eventually the State will afford a market where the owners of such worthless stock may receive a very large profit, and, because of this fraudulent introduction, the State can never eradicate the disease.

Those who oppose the destruction of tuberculous animals without compensation principally favor the payment to the owner of a sum of money based upon a health value; and their reasons for advancing this will be stated under these headings. In addition, however, they assert that, while many of the animals which are destroyed as tuberculous are in fact worthless, a large number of them, especially of those which are detected by the tuberculin test, have to the owner a real value, because they have, under existing laws and in practice, an earning capacity at least equal to that of healthy stock; that if the State did not destroy them, under proper sanitary conditions and where the disease was in its incipient stage, they might possibly recover; and in support of this they cite the hospital statistics of post-mortem examinations showing that a certain percentage of human beings who die have within them lesions of consumption which are entirely healed; that certainly these cows would under favorable conditions live for many years, during which they would produce a substantial income to their owners not only from the sale of milk, which in many cases is unusually copious, but also from their calves, which are born free from tuberculosis (it having been demonstrated that it is not an hereditary disease), and which therefore might grow up under healthful conditions, fed upon milk where the germ is not present, and become perfectly healthy cattle in every respect.

In answer to this, however, those who favor no compensation assert that, while in theory such calves may possibly grow up to be healthy, in practice they are the first to become diseased, because they inherit a weakened constitution and thus fall an easy prey to the disease to which they are constantly exposed through its presence in their parents.

*Second. — The payment to the owner of the actual value of the animal at the time of slaughter, based upon appraisal which shall take into consideration the existence of the disease and all other elements of value.*

Those who favor this proposition assert that by the adoption of this rule justice would be done not only to the owners of the

cattle destroyed but to the public at large. They assert that these animals which are destroyed by the State are in fact the property of the owner, and have a substantial value, for the reasons already given; that by the destruction of such animals the State is depriving the owner of his property, and in consequence he should be reimbursed as others are whose property is taken for the public good, by receiving from the State the exact value thereof; that the policy of the State has always been to provide, in every act which deprives a man of his property, that he should receive the value, and that he should have an easy means whereby that value could be determined by a disinterested tribunal; that if this were done the owner would receive from the State whatever the animal was really worth, taking into consideration its capacity to yield milk, the fact that the offspring of such animal are free from the disease and may therefore grow up to be healthy animals, and all other elements which go to make up the value of such property; and they further assert that this is the policy which has been adopted by a large number of other States where the same work is being performed, citing the laws of Rhode Island, Connecticut, Pennsylvania, Illinois, Ohio, Iowa, Missouri, Indiana and Kansas.

Those who oppose this proposition assert that, as a matter of fact, in the appraisal of such animals upon their *actual value* the fact must be taken into consideration that the animal is affected with a contagious disease; and that whenever competent persons are called upon to value such an animal, taking into consideration the fact of such contagion, it will always result in arriving at a value which is substantially nothing, because such value, after all, must be what purchasers would pay for such animal in the open market under all the circumstances, knowing the fact that the animal has this contagion and is liable to spread it among other stock with which it is brought in contact, and that the product of such animal is dangerous to the public health; and they assert that in fact no purchaser could be found who would be willing to pay anything for such animal; and they cite in this connection the experience of the State under the laws which authorized the payment of the actual value of glandered horses, which resulted in an abandonment of the law and a final adoption of a provision which provided for no compensa-

tion, because in experience the appraisal was found to give no value to the owner, and simply put the State to unnecessary expense and trouble.

Those who favor this proposition say, in answer, that the experience of the State in the case of glanders was in connection with an entirely different disease, which quickly proves fatal; that the animals destroyed had no value because they yield no food product; that, in so far as it applies to the experience in the past in the case of tuberculosis, that experience was based entirely upon the destruction of animals in the advanced stage of the disease, based upon a physical examination; and that, when animals are to be destroyed relying upon the tuberculin test, a different class of animals is reached, many of which are to all external appearances sound.

*Third. — The payment of one-half apparent or health value of the animal on a limited basis, disregarding the fact that it is affected with tuberculosis.*

*Fourth. — The payment of the full value of the animal, ascertained in the same manner.*

Both of these propositions are supported and opposed in substance by the same class of persons and upon the same arguments, based upon the expediency or non-expediency of paying to the owners a portion or all of what they may have more or less innocently invested in the stock destroyed.

Those who favor this payment on either basis assert that, as a question of expediency, such payment should be made, and that otherwise the law works a great hardship upon the farming and agricultural community without their receiving any commensurate benefit. They assert that, while it may not have been a serious hardship to this class to have their animals destroyed as tuberculous, relying only upon a physical examination, with the introduction of tuberculin as a means of determining the existence of this disease the conditions entirely change.

For the first time, in tuberculin there has been placed in the hands of the State a reliable agent for the detection of this disease. They cite the fact that by the use of this agent very many animals throughout the State are being condemned and destroyed as tuberculous which have every external appearance of being sound and healthy, which have been yielding large quantities of milk.



which are still apparently in full health and vigor, and which would, if allowed to live, yield to the owners for many years a material return; that, while such animals may have within them the seeds of this disease which may ultimately sap their vitality, they exhibit no external symptoms of it; and that, were it not for the intervention of the State and the demonstration of the existence of the disease by the tuberculin test, not only could the farmer receive a full return from the animal, but such an animal in the market, judged by all means which are within the power of the ordinary buyer, would frequently sell as freely and for as high a price as other animals in which the disease does not exist; and that therefore the State is merely paying to the owner what he could obtain in the open market for his animal had not the State stepped in and pointed out its latent defects; that this tuberculin test is a purely scientific method, which can be safely and successfully used only by those who have peculiar skill, a scientific training and a more or less extended experience in its use; that therefore it is entirely without the reach of farmers and dairymen as a means of assisting them in determining whether the stock they have purchased is sound and free from the disease. Not only is it without their power to use it, but, because of its recent introduction and because the reliability of it has only been comparatively recently demonstrated, it has not been within the control of veterinarians; and they assert, therefore, that the agricultural class has not had the power, either themselves or by the calling in of others, to gain the benefit of the knowledge derived from its use; that these owners of stock have used every reasonable precaution that ordinary business men would bring to bear to ascertain that their stock is as healthy and free from disease as circumstances will permit; that this disease is not only not of recent introduction, but has been existing and spreading among neat stock for years without any steps having been taken by the State to stamp it out, and therefore that it is in no sense their fault that this marvellous agent should suddenly find that their cattle are affected with this insidious disease; that not only have the agricultural class bought from time to time these cattle in good faith, as sound, but that in fact they have invested large sums of money in this stock, and that to-day it is their main source

of livelihood; that, while the value of a single cow may be small, the aggregate capital invested by this class in such cattle is large; that there are to-day in this State 223,536 head of neat stock, which, upon the average value for milk or beef purposes, as found by appraisal of animals destroyed by the commission, of \$37.72 a head, means a total investment in such cattle of \$7,657,405; that, inasmuch as the commission, as based upon its work in the field during the past six months, has found that there are probably ten per cent. of the stock throughout the State tuberculous, this means a destruction of perhaps \$765,740 worth of such cattle on a health basis; and that, if the agricultural class are obliged to bear this entire loss, it means not only a ruin of their business in the State, but a consequent loss to the public, because it will drive the dairymen from the State, and thus cut off the local source of milk supply upon which the citizens depend, and which can, while such cattle are within the State, be so regulated through the systematic examination of all cattle within the limits that the public will be assured of a healthful supply of milk; whereas, if this business be driven from the State, this milk must come from cattle kept without the limits, where the Commonwealth cannot regulate the healthiness of the stock from which it is derived, and therefore the State will fail to accomplish one of the principal objects hoped to be obtained by this work, — *i. e.*, a supply of milk free from this source of contagion.

They assert that the policy of paying for the animals found by the tuberculin tests to be affected does not substantially vary in practice from that which was adopted in the case of pleuropneumonia; that in the case of that disease, animals which showed upon physical examination that they were diseased were destroyed without payment, while animals which did not so externally exhibit the disease were only destroyed upon payment to the owner of the full health value; that when tuberculin is used, many animals reached and destroyed are those which, if a physical examination were relied upon, would not be detected, and would only be destroyed upon the theory that the contagion cannot be eradicated except by the destruction of all of the animals in the herd which have been exposed to it; and that, as in such case the owner would receive the full health value, he should not be deprived of that value because the

existence of such disease is demonstrated by this agent which the dairyman has not himself the skill to apply. And, finally, they assert that the policy of seeking out these disseminators of contagion by the use of tuberculin, and destroying them, is a broad public-health policy adopted by the State for the purpose of protecting, as far as possible, the lives and property of its subjects; that the real reason which leads to the destruction of these animals is because the food products derived from them are a source of danger to its citizens; that this danger extends to all those who consume these products, and that therefore it is a measure in which all are equally interested, and the benefit of which will be reaped by everybody, without distinction as to class or calling; that, inasmuch as this is a public measure, in which the public generally are vitally interested and where the benefit is shared equally by all, the same policy dictates that it is equitable and just that the entire expense or loss derived therefrom, whether it be due to the cost of the administration of the law, to its enforcement, or to the loss which the owners of the animals suffer by reason of this destruction for the public good, should be borne equally by all; and that the only method of doing this is by having the State pay full indemnity and bear the entire expense, which thus will be equitably distributed through the medium of taxation of all its citizens.

They further assert that, by the adoption of a policy of paying to owners a fair value for their animals, the State encourages such persons to bring forward all diseased animals, and that thus a great assistance will be afforded to the commission in its work by the hearty co-operation of the agricultural class, who thus will feel every encouragement to assist in the stamping out of this disease; whereas, under a system which provides for destruction without indemnity, unscrupulous men will use every endeavor to dispose of as yet incipient or occult cases of tuberculosis, and thereby plant the infection widely in new herds, and that as a result the State will never be able to thoroughly eradicate the disease.

Those who oppose the payment of any remuneration on the health basis assert that it is a payment to the farmer by way of a gift of a sum of money, which is not the value of the animal destroyed, but is in the nature of an insurance against the

existence of the disease ; and that in fact it makes the State an insurance company, as far as farmers are concerned, in connection with tuberculosis, in the same sense that any live stock company takes risks upon animals which they underwrite, without, however, the farmers having to pay any premium, and without the State's having the opportunity to first examine the animal, to determine whether it is sound, before assuming the risk.

They claim that the payment to a favored class of persons of a sum of money by the State for animals destroyed, not based upon their actual value, and only when the owner has conformed to certain regulations of the State, is unconstitutional, because it is in no sense a reasonable compensation paid to an individual for property appropriated for public uses within the meaning of the constitution ; and because, as the money which is paid is raised by taxation, it is not a payment necessary for "the protection and preservation" of the citizens of the Commonwealth, or otherwise, within the purpose for which State government has power to raise money by taxation.

They assert that it is not true that animals which are tuberculous in any degree have a real value to the owner, which can be regarded by the Commonwealth ; that such alleged value depends upon the right of the owner to sell the milk or meat derived from such an animal ; that by being allowed to retain such an animal he reaps the benefit only so long as he is allowed to sell its diseased products ; that, if the State should examine all the neat cattle within its limits, and, instead of destroying those diseased, plainly brand them as such, and then should pass sanitary laws, which would be but just, that the meat and milk from such tuberculous animals should not be sold in the open market, from that moment the animal would cease to have any earning value, and if after that the State should go through and destroy such animals upon any equitable system of appraisal, the owner would receive no value for the same ; and therefore he should not, under existing laws, receive a payment from the State because he is prevented by means of the destruction of his tuberculous stock from selling diseased meat and milk ; that the public reaps the benefit from the destruction of such animals in the same manner that it does from laws which prevent the sale of adulterated food and

other similar products, or from those which in any way restrain the doing of a wrongful or criminal act; that, while apparently the loss by the destruction falls on the agricultural class, the loss is not due to the destruction, but due to the existence of the disease; that, while it may be a serious loss to the agricultural class to lose their animals through tuberculosis, it is simply a loss which is incident to the trade which they have seen fit to carry on; and that, if they have had the misfortune to invest in materials of their business which either are at the time of such purchase, although unknown to them, or which subsequently become in their possession, worthless, from causes over which the consumer of their products has no control, the policy of the State no more dictates that it should bear this loss than that it should bear the loss which others suffer by reason of business reverses.

They assert that a policy involving the payment to the farmers of a portion of or the whole of the value of such animals, upon a basis other than their actual worth, considering the disease, is an encouragement to these owners to be careless about the sanitary conditions under which their cattle are kept; and that this would result in the unnecessary exposure of the stock to the ravages of the disease, and so reduce their power of resistance as to make them an easy prey to it. And they cite in this connection numerous statistics tending to show that the percentage of this disease among the human race increases directly in proportion to the density of the population of the locality where they dwell, and that where the sanitary conditions of such people are the poorest, there the percentage of consumption is the greatest. They further assert that, inasmuch as the majority of the cattle in this State are kept for dairy purposes, any law which pays to such persons the full health value of their tuberculous stock will eventually cause the majority of these animals to be purchased by the State; because, they say, by keeping his cattle in close, heated quarters, where they have an insufficient supply of pure air, where they are fed upon rich food materials and where they are bred oftener than once a year, the owner receives the greatest annual return, but that this treatment results in so wearing out the constitution of the animals that they die at an early age and are rendered highly susceptible to tuberculosis; and if in the end

the farmer can receive from the State the full health value of such animals, the law would defeat itself, because it would be much more profitable to do this than to keep his animals under normal conditions, where, while they may last longer, the owner can receive nothing for such animals on their death.

They further assert that such payment will result in the importation of diseased animals into the State for the purpose of selling them to the government, stating — what is undoubtedly true — that such animals may be bought for a few dollars, and that if they can sell them to the State at \$37.72 a head, or even \$18.86 a head, they would obtain such a large profit that it would encourage this illicit trade, which it would be practically impossible to prevent.

In answer to this last argument, those who favor the proposition assert that if, coupled with the law providing compensation, a minimum limit is imposed of residenceship of such animals before the owner can receive compensation, the danger of the loss of the total value of the animals if found and destroyed within that limit of time would so discourage the introduction of such animals that but few would be imported; that, by means of proper quarantine regulations such as have already been established, all such animals can be stopped and examined at the State line, and if found tuberculous will be destroyed; and that, by a system of branding animals within the State which have been found free from the disease, the introduction of such animals into the State without the brand would immediately expose the practice, and that thus as a result there would be but little danger from this source.

As between the half indemnity and the full indemnity, those who favor the half indemnity assert that under the circumstances it is a more just and equitable distribution of the burden and benefit; that, while the farmer reaps the benefit with other citizens resulting from the State's obtaining a pure food supply, he reaps an additional benefit by having the State remove from his herds, without expense to him, this source of contagion, which is liable ultimately to destroy them; and that therefore he should bear a greater share of the expense than he would by simply paying his proportion of the taxes; and, further, that by paying one-half indemnity there would not be sufficient inducement to unscrupulous persons to practise fraud upon the State for the purpose of obtaining this amount.

Those who favor the full indemnity assert that half measures do but little good; that, by a system of one-half indemnity, unscrupulous persons are encouraged to so over-value their animals as that they will in effect receive the full indemnity, while the honest and conscientious dairyman would be placed at a disadvantage; that the theory of paying compensation is based upon the assumption that the owner has invested his money in good faith in the stock destroyed; that as the State does not make him whole by paying one-half only, and, as the loss from this means may be large to him, it encourages him to secrete his animals, to prevent their being tested and possibly destroyed, and to otherwise thwart or hamper the State in its work of stamping out the disease; whereas, by the payment of full compensation, the owner suffers no loss, he is merely given the opportunity of replacing his unsound animals with sound ones; that therefore it will be for his benefit to assist the State in every way in stamping out the disease, that thus every agriculturist throughout the State will be on the lookout to detect and report the disease; and, as a result of all this, while the State will pay out a greater or less sum by way of indemnity to the owners for the animals destroyed, it will render the performance of the work very much easier, and thus to a greater or less extent so far reduce the administrative expense that in the end the cost to the State will be but little if any more than would result from the attempt to perform the work without remuneration to the owner, and at the same time will not discourage a business in which so many of its citizens are so largely interested.

As a part of the proposition of paying indemnity on the health value, those who favor it also approve the adoption of some restriction as to the residence, as was done in the case of the act passed in the State last year, which requires that the animal must have been owned in the State six months prior to its having been killed. Against the adoption of this six-months rule it is argued that it works a hardship in many cases; and that there is no greater reason why a farmer who buys stock in good faith, believing it to be sound, and pays the full price for the same, after having exercised every precaution, should receive nothing from it when subsequently found to be infected, because it has not actually been within the State six months; while his neighbor, who has

raised his stock upon his own farm, and has possibly thereby perpetuated the disease through interbreeding and exposure to the contagion, should receive from the State the full value for the same. It is further claimed that this rule works an injustice upon farmers living on the border line, who pasture their cattle in the neighboring States during the summer.

As against this, however, it is claimed that, while these persons would lose the value of such animals if destroyed within six months after they have returned from such pasturage, inasmuch as this State is endeavoring to stamp out the disease from cattle within its limits, and thereby to place in the power of the agricultural class the means of keeping their cattle healthy, if anyone of such persons sees fit to remove his cattle from the State and expose them to possible contagion under circumstances over which the State has no control, he should take the risk of the loss which has resulted from his own acts; they further assert that, by the adoption of proper quarantine regulations and examination, as now established by this Board, such cattle would upon their return be properly tested and destroyed at the border before entering the State, and thus the farmer would lose such cattle even without a limit of residence-ship.

In the matter of payment of compensation on a health basis, the State of Nebraska is paying full health value.

The following States are paying for tuberculous animals a limited health value: Massachusetts, Maine, New Hampshire, Vermont, New York and New Jersey.

In the following States a limit of ownership within the State is required: Three months, Rhode Island, New York, New Hampshire; six months, Massachusetts, Vermont, Nebraska; three years, Maine.

As bearing on this matter of the payment of compensation, the Vermont Agricultural Experiment Station, in its Bulletin No. 42, of July, 1894, on Bovine Tuberculosis, sums up the matter as follows:—

The arguments for and against the indemnity system may be summed up briefly as follows:—

1. The indemnity system encourages the disclosure of the existence of disease and favors its more complete eradication, while the



absence of some such system leads to the concealment and dispersion of disease. In many cases the comparatively small expenditure for indemnity distributed among many tax payers is truer economy than the losses in life and money caused by animal diseases which have been concealed.

2. The indemnity system recognizes the rights of property.

3. Since the public is benefited in being guarded against disease, it should bear its share of the cost of that protection.

On the other hand : —

1. The indemnity system is apt to encourage disease. The stock owner is less careful if he can rely on the State to purchase his infected animals, even though at a low rate.

2. Diseased animals are often collected at a low figure from other owners and other States for the purpose of getting indemnity from the State.

3. It is liable to become a burden to the tax payer.

4. The State essentially insures breeders and owners against their mistakes and misfortunes. While it is hard to lose property in any form, a diseased animal is a nuisance. There should be no question between a loss of dollars and the not improbable ruin of the health of human beings.

From the stand-point of disease eradication only, there is no question that a liberal indemnity promptly paid is preferable to any other course.

Prof. James Law, of the New York Tuberculous Commission, in Bulletin 65, April, 1894, of the Cornell University, Agricultural Experiment Station, Veterinary Division, gives the following views : —

#### INSUFFICIENT INDEMNITY A FALSE ECONOMY.

In conclusion, it is right to emphasize the importance of a due consideration of property rights. Sanitary laws which in any way ignore or disregard the rights of property have within themselves the seeds of defeat. If within our municipal abattoir the butcher cannot conduct his business as well and economically as in his own establishment, he or his competitors will evade the law in some way. If the stock owner is not fairly reimbursed for his animals slaughtered and for other losses sustained for the protection of the public health and of the country's herds, unscrupulous men will find ample means of trading off the as yet incipient and occult cases of tuberculosis, and

thereby planting the infection widely in new herds. *Compensation must stop short of making the sanitary bureau a profitable customer for tuberculous animals at sound prices, but it must be so liberal as to enlist the ready co-operation of the stock owner in having every infected beast safely disposed of.* Cases of advanced generalized tuberculosis may in all justice be listed at a low rate, as they are in every sense unfit to live, and are an expense, a danger and a nuisance even when dead. Cases, too, that have just been imported from another State or country, and which are either manifestly diseased or taken from a tuberculous herd, may fairly be excluded from indemnity, and above all from a liberal indemnity. *But in nearly every herd the majority of the stock condemned are to all outward appearances sound animals, and the owner has had no suspicion concerning them until this has been betrayed by the tuberculin test.* But for that he would have gone on utilizing the animals in perfect good faith, and his customers would have received the dairy products in all confidence as to their wholesomeness. Had he wished to sell these animals for the dairy or for beef, he would have found plenty of purchasers at sound market rates. If the stock were thoroughbred and their progeny of a high prospective value, he could have continued to breed from them for years, — since calves are rarely born tuberculous, not once in many thousand births, even from tuberculous parents; and thus he might have largely profited by raising them on the milk of healthy cows. Then, again, in country districts the owner must bear the cost of disposing of the carcass by burning or burial in some place to which other animals do not have access. Further, the essential work of disinfecting the premises is at present put on the shoulders of the stock owner. Once more, if the stock owner is a dairyman, his trade is injured by the condemnation of animals in his herd. *Customers will suddenly change to other dairies, creameries will be closed against his milk, and health officers are likely to quarantine the product, at least between the condemnation and slaughter.* Apart from this, his home supply of milk is lessened, and to keep his customers he must go into the market and buy milk from others.

It is quite evident that in many cases of dairy herds and of valuable thoroughbred animals an indemnity amounting to even the sound market value of the animals killed comes far short of reimbursing the owner for his actual losses.

These considerations should be taken fully into account, before adopting any proposal to fix a maximum sum or rigid rule for estimating values.

## LAWS OF THE SEVERAL STATES ON COMPENSATION.

*Full Value on Health Basis.*

## NEBRASKA.

[Consolidated Statutes of Nebraska, Chapter 2.]

SECT. 142. The governor is hereby authorized to employ four agents, one of whom shall be a competent and skilled veterinarian, who shall be a graduate in good standing of a recognized college of veterinary surgery, and who shall be known as the state veterinarian, and shall receive two thousand five hundred dollars per annum for his services; and three of said agents shall be practical stock men who are actually engaged in stock raising, and shall each receive five dollars per diem, and shall be known as the live-stock agents of the state of Nebraska, and each of said agents shall receive their actual travelling expenses by them incurred and paid while in the discharge of their duties as such agents.

SECT. 148. When, in the opinion of the live-stock agents, it shall be necessary, to prevent the further spread of any contagious or infectious disease among the live-stock of this state, to destroy animals affected with or which have been exposed to any such disease, it shall determine what animal shall be killed, and appraise the same as hereinafter provided, and cause the same to be killed and the carcasses disposed of as in its judgment would best protect the health of the domestic animals of the locality.

SECT. 149. Whenever, as in the seventh section of this act (148) provided, the live-stock agents shall direct the killing of any domestic animal or animals, it shall be the duty of the agents to make a fair and faithful appraisal of the said animal or animals, and *in making the appraisal, the contagious disease with which the animal is affected or to which they have been exposed shall not be taken into consideration. The amount of the appraisal shall in no case exceed seventy-five dollars per head for horses and mules, and twenty dollars per head for cattle*, provided that no animal or animals shall be appraised except those affected with contagious or infectious diseases of a malignant character, or such as have been exposed thereto.

SECT. 153. When any animal or animals are killed under the provisions of this act, by order of the agents, *the owner thereof shall be paid therefor the appraised value as fixed by the appraisal, as hereinbefore provided.* The rights of indemnity on account of animals killed by order of the live-stock agents under the provisions of this act shall not extend to the owner of animals which have been brought into the state in a diseased condition, or from a state, county, terri-

tory or district in which the disease with which the animal is infected, or to which it has been exposed, exists; nor shall any animal be paid for by this state which may have been brought into the state in violation of any law or quarantine regulation thereof, or the owner thereof shall have violated any of the provisions of this act, or disregarded any rule, regulation or order of the live-stock agents or any member thereof; nor shall any animal be paid for by the state which came into the possession of the claimant with the claimant's knowledge that such animal was diseased or was suspected of being diseased or having been exposed to any contagious or infectious disease; nor shall any animal belonging to the United States be paid for by the state: *provided, further*, that in no case shall compensation be allowed to the owner of any animal or animals when, by reasonable diligence, he, his proper agent or employee, could have protected said animal or animals from being exposed, or to any owner who in person or by agent conceals the existence of any contagious or infectious disease among his stock; and *provided, further*, that no remuneration shall be paid by the state for animals slaughtered for contagious or infectious disease in any case where the owner or his representative is not the first to notify the proper authorities of the existence of such disease or a suspicion of the same among his stock; that no remuneration shall be paid for horses or mules found diseased or suspected of glanders when such horses or mules have been imported into the state and have not been in the state over six months.

### *One-half Value on Health Basis.*

#### MAINE.

In chapter 177 of the Laws of Maine, 1889, an act was passed authorizing the appointment of three Cattle Commissioners. Section 2 of this act directed the commissioners—

also to cause the same to be destroyed, and to pay the owner or owners thereof one-half of their value as determined upon the basis of health before infection, out of any of the moneys appropriated by the legislature for that purpose: *provided, however*, that no appraised value shall be more than two hundred dollars for any animal with pedigree recorded or recordable in the recognized herd books of the breed in which the animal destroyed may belong, nor more than one hundred dollars for an animal that has no recordable pedigree. *Provided further*, that in no case . . . shall compensation be allowed for any animal destroyed under the provisions of this act . . . that may have been brought into this state within one year previous to such animals showing evidence of such disease.

This section 2 was amended by chapter 194 of the Acts of the year 1893 to read as follows :—

SECT. 2. That it shall be the duties of the said commissioners to cause investigation to be made as to the existence of tuberculosis, pleuro-pneumonia, foot and mouth disease, and any other infectious or contagious diseases ; and such commissioners or their duly constituted agent are hereby authorized to enter any premises or places, including stock yards, cars and vessels within any county or part of the state, in or at which they have reason to believe there exists any such disease, and to make search, investigation and inquiry in regard to the existence thereof. Upon the discovery of the existence of any of said diseases the said commissioners are hereby authorized to give notice by publication of the existence of such disease and the locality thereof, in such newspapers as they may select, and to notify in writing the officers or agents of any railroad, steamboat or other transportation company doing business in or through such infected locality of the existence of such disease ; and are hereby authorized and required to establish and maintain such quarantine of animals, places, premises or localities as they may deem necessary to prevent the spread of any such disease, and also to cause the appraisal of the animal or animals affected with the said disease, in accordance with such rules and regulations by them as hereafter authorized and provided ; and also to cause the same to be destroyed and *to pay the owner or owners thereof one-half of their value, as determined upon the basis of health before infection*, out of any moneys appropriated by the legislature for that purpose : *provided, however, that no appraised value shall be more than one hundred dollars for an animal with pedigree recorded or recordable in the recognized herd book of the breed in which the animal destroyed may belong, nor more than fifty dollars for an animal which has no recordable pedigree ; provided, further, that in no case shall compensation be allowed for an animal destroyed under the provisions of this act which may have contracted or been exposed to such disease in a foreign country, or on the high seas, or that may have been brought into the state within three years previous to such animal's showing evidence of such disease, and the owner or owners shall furnish satisfactory evidence as to the time such animal or animals shall have been owned in the state ; nor shall compensation be allowed to any owner who, in person or by agent, knowingly and wilfully conceals the existence of such disease or the fact of exposure thereto in animals of which the person making such concealment by himself or agent is in whole or part owner.*

Maine relies upon the owners reporting cases of tuberculosis,

and does not make any systematic inspection of the animals in the State.

#### NEW HAMPSHIRE.

[Laws of New Hampshire, Chapter 33.]

SECTION 1. The owners of cattle killed by order of the state board of cattle commissioners *shall recover of the state one-half the value of such animals upon a basis of health*, such value to be ascertained by a disinterested appraisal, provided they have been *owned in the state three months at least before the disease was detected*.

New Hampshire relies upon the owners reporting cases of disease, and does not conduct a regular inspection.

#### VERMONT.

The Revised Statutes of Vermont were amended Nov. 27, 1894, by an act, No. 102 of the Laws of Vermont. The important sections of this amendment are as follows:—

SECTION 1. Section 4021 of the Revised Laws is hereby amended so as to read as follows: When bovine tuberculosis or any contagious disease exists in the state among cattle or other domestic animals, the board of agriculture may quarantine all infected animals or such as they suppose have been exposed to the contagion, may prohibit any animal from passing on or over any of the highways near the place of quarantine, may enter upon any premises where there are animals suspected to have bovine tuberculosis or any contagious disease, may employ such expert help and means as they deem necessary to a thorough investigation of such diseases, may make all investigations and regulations they deem necessary for the detection, prevention, treatment, cure and extirpation of such disease, *but shall not apply the tuberculin test without the consent of the owner of the cattle, but in quarantine regulations against cattle imported from without the state the tuberculin test may be applied*; and they may condemn or order killed any cattle or other domestic animals believed by said board to be infected with bovine tuberculosis or any contagious disease, and may order the bodies of the same buried or burned, as in their judgment the case may require; may forbid the sale or removal from the premises of any dairy product from cows that are believed to have bovine tuberculosis. Any person who shall knowingly violate or refuse to comply with any order or regulation of such board, made under the authority of this section, shall be fined not more than two hundred dollars or be imprisoned not more than two years, or both.

SECT. 3. The value of all cattle or other domestic animals killed by the written order of the board of agriculture shall be appraised by one of said board of agriculture and a disinterested person selected by the owner of the condemned animals; but if these two cannot agree upon the amount of the appraised value of the animal, they shall select a third disinterested person, who, together with them, shall appraise the animal, *such appraisal to be made just before the killing, and on a basis of health.* *The limit of the appraisal of cattle shall be forty dollars.* A post-mortem examination shall be made, *and if the animal be found affected with bovine tuberculosis, or any disease dangerous to the public health, the owner of the animal shall receive one-half of the appraised value; but if no bovine tuberculosis or disease dangerous to the public health be found, the owner of the animal shall receive the full amount of the appraisal, and in addition shall receive the slaughtered animal.* The amount which the owner is entitled to receive shall be paid by the state to the owner of such animal or animals upon a written order, signed by the member of the board in charge, and countersigned by the secretary of said board. *No indemnity shall be paid to the owner of condemned cattle or other domestic animals that have not been owned and kept in the state for at least six months previous to the discovery of the disease.* Any person who shall knowingly violate or refuse to comply with any regulation made by such board of agriculture, under the authority and provision of this section, shall be fined not more than two hundred dollars, or imprisoned not more than two years, or both.

MASSACHUSETTS.

[Section 45 of Chapter 491 of the Acts of 1894.]

SECTION 45. When the board of cattle commissioners or any of its members, by an examination of a case of contagious disease among domestic animals, becomes satisfied that the public good requires it, such board or commissioner shall cause such animal or animals affected therewith to be securely isolated at the expense of the owner, or shall cause it or them to be killed without appraisal or payment. Such order of killing shall be in writing and may be directed to the board of health, inspector or other person, and shall contain such direction as to the examination and disposal of the carcass, and the cleansing and disinfecting of the premises where such animal was condemned, as such board or commission shall deem expedient. A reasonable sum may be paid out of the treasury of the Commonwealth for the expense of such killing and burial. If it shall subsequently appear, upon post mortem examination or otherwise, that such animal was free from the disease for which it was

condemned, a reasonable sum therefor shall be paid to the owner thereof by the Commonwealth: *provided, however*, that whenever any cattle afflicted with the disease of tuberculosis are killed under the provisions of this section one half of the value thereof at the time of slaughter for food or milk purposes, and without taking into consideration the existence of such disease, shall be paid to the owner thereof out of the treasury of the Commonwealth if such animal has been within the state six months continuously prior to its being killed, provided such person shall not have, prior thereto, wilfully concealed the existence of tuberculosis or by act or wilful neglect contributed to the spread of such disease.

#### NEW YORK.

The laws were amended by chapter 674 of the General Laws of New York, enacted May 12, 1894.

SECTION 1. Section sixty-two of the public health law is hereby amended to read as follows:—

SECT. 62. *Destruction of Domestic Animals affected with Tuberculosis or Glanders.*—Whenever the state board of health may deem it necessary for the prevention of the spread of tuberculosis in cattle, such board may cause to be killed any animal affected thereby, or which, by contact with diseased animals or by exposure or infection or contagion therefrom, such board may determine is liable to contract or communicate such disease; but no such diseased animal shall be so killed on account of tuberculosis unless first examined by a veterinary practitioner in the employ of the state board of health, and, if desired by the owner, appraised as hereinafter provided. A local board of health shall, pursuant to rules and regulations prescribed by the state board of health, cause to be killed every horse affected with glanders found within its jurisdiction, but no horse shall be so killed on account of glanders until the value thereof be appraised as hereinafter provided.

SECT. 2. Section sixty-three of said act is hereby amended to read as follows:—

SECT. 63. *Compensation to Owners.*—To determine the value of such animal, the comptroller shall designate some competent disinterested person, residing within the judicial district in which such animal may be, to act as appraiser, with an appraiser to be selected by the owner of such animal, who shall promptly fix a time when they shall view such animal and shall proceed to appraise the value thereof. In case of a disagreement between the two appraisers, the third appraiser shall be selected by them, and the estimate of the value of either two of them shall be final. *The animal shall be appraised*



*at its sound value: provided, however, no single unregistered animal shall be appraised at more than sixty dollars, and no horse affected with glanders shall be appraised at more than fifty dollars. Each appraisal shall be in writing, signed by the appraiser or appraisers agreeing, and shall be delivered by them, if any animal be suspected of tuberculosis, to a veterinary practitioner in charge of such animal, and if the animal be a horse affected with glanders, to the secretary of the local board of health having jurisdiction thereof. Upon the delivery of such appraisal such animal shall be killed as hereinbefore provided; and if it be killed on account of tuberculosis, the veterinary practitioner in charge thereof shall forthwith make a post-mortem examination of the animal, and if it shall be discovered on such post-mortem examination that the animal was affected by tuberculosis, the owner of the animal shall be entitled to receive one-half of the appraised value: provided, however, that not more than sixty dollars shall be paid for a diseased registered animal and not more than twenty-five dollars shall be paid for a diseased unregistered animal; but if such examination of the animal killed on account of tuberculosis discloses that the animal was not affected with tuberculosis, the owner shall be entitled to receive the full appraised value. The written appraisal of the value of an animal killed on account of tuberculosis, and a written statement of the result of the post-mortem examination thereof, signed by the veterinary practitioner in charge thereof, shall forthwith be transmitted by such veterinary practitioner to the secretary of the state board of health, who shall file the same in his office. The secretary of the local board of health having jurisdiction in the case of a horse affected with glanders shall, in case such horse is killed, upon receipt of the written appraisal, signed by the appraiser or appraisers, as hereinbefore provided, forthwith make and sign a certificate of such fact, and transmit such appraisal and certificate to the secretary of the state board of health, who shall file the same in his office. Upon receipt from the veterinary practitioner in the case of an animal killed on account of tuberculosis, or from the secretary of the local board of health having jurisdiction in the case of a horse killed on account of glanders, such secretary of the state board of health shall forthwith make a written certificate, signed by him, setting forth the name and post-office address of the owner of the animal killed, and the amount which such owner is entitled to be paid on account of the killing of such animal, and shall forthwith transmit such certificate to the comptroller, who shall issue his warrant upon the treasurer for the payment to such person of the amount so certified, and shall mail the same to such person at his post-office address as it appears by such certificate. No compensation shall be allowed to any person who shall have wilfully concealed the existence of tuberculosis or glanders among his animals,*

*or upon his premises, or who, directly or indirectly, by act or wilful neglect shall have contributed to the spread of such diseases or either of them; and no compensation shall be made under the provisions of this act to any owner for animals killed unless the animal or animals shall have been actually owned and possessed by the owner thereof within this state for a period of three months prior to such condemnation.* The appraisers, to be appointed as aforesaid by the comptroller, shall hold office during the pleasure of the state board of health. Each appraiser so appointed shall receive as compensation the sum of five dollars per day for each day actually employed, and shall also be paid his actual necessary disbursements; but no claim for services or disbursements shall be allowed or paid unless accompanied by a verified detailed statement thereof.

## NEW JERSEY.

[Chapter 317 of the Laws of 1894, approved May 22, 1894.]

SECT. 1. *Be it enacted by the Senate in General Assembly in the State of New Jersey,* That the president of the state board of agriculture shall appoint five persons of the citizens and tax-payers of this state, who, together with himself and the secretary of the state board of agriculture, shall constitute a commission, who shall, at the request of two members of the state board of health, or the state dairy commissioner, or any owner of suspected animals, investigate the existence of tuberculosis or cause the same to be investigated, and if any such disease is found to exist, to enforce such regulations in relation to the same, as the said commission may adopt.

SECT. 2. *And be it enacted,* That when any animal or animals shall be slaughtered by direction of said commission, the value of the same shall be ascertained and appraised by three disinterested freeholders, resident in this state, who shall make and sign certificates thereof in the presence of a witness, who shall attest the same. *Such appraisement shall be made on the basis of the market value of the animal or animals slaughtered just prior to the time when they became so diseased, and shall be limited to the sum of one hundred dollars for registered animals and to forty dollars for all others; one-half of the valuation so ascertained shall be paid by the state on the presentation of such certificate with the approval of said commission endorsed thereon, to the owners.*

*Actual Value in Diseased Condition.*

## RHODE ISLAND.

Chapter 1082 of the Laws of Rhode Island, 1891 and 1892, and chapter 1206 of the Laws from May, 1892, to January, 1894, provide for a State Board of Agriculture.

SECT. 8. The board may appoint one cattle commissioner in each county of the state, whose duty it shall be to visit and inquire into the condition of any domestic animal in their respective county, whenever there is reason to suspect that any such animal or the carcass of any such animal is affected with tuberculosis or any other contagious, infectious or communicable disease; and the commissioners in their respective counties are authorized to quarantine any such animal or the carcass of any such animal until inspected by the veterinarian employed by the board.

SECT. 10. Whenever any animal shall be suspected by either of the cattle commissioners to be affected with tuberculosis, the commissioner of the county where the animal is found shall immediately notify the state board of agriculture, who shall promptly fix a day when the appraisers duly appointed, as hereinafter provided, shall visit the suspected animal with the veterinarian, and upon confirmation of the disease and after appraisement of the value as hereinafter provided, the affected animal shall be killed and the carcass disposed of in such manner as shall not be detrimental to the public health. Any one having reason to suspect that any horse or other animal is affected with glanders, farcy or any contagious or communicable disease, shall immediately report the same to the secretary of the state board of agriculture, who shall notify the veterinarian employed by the board, and said veterinarian shall promptly examine the suspected animal, and if it is found to be affected with glanders, farcy or any contagious or communicable disease, the veterinarian shall cause the said animal to be killed and the carcass to be disposed of in such manner as shall not be detrimental to the public health.

SECT. 11. For the purposes aforesaid, the board may appoint some suitable person as appraiser, whose duty it shall be to act with one of the cattle commissioners of each county, which two persons shall constitute the board of appraisers of the county. In case of disagreement between the two appraisers, the veterinary surgeon shall act as a third appraiser, *and the estimate of value of either two of them shall be final: provided, that not more than fifty dollars shall be allowed for any single native animal, nor more than seventy-five dollars for any single grade animal, nor more than one hundred dollars for any single registered animal;* and written notice of the amount of the appraisal, signed by the board of appraisers, shall be immediately given to the owner or claimant of said animal; and *provided, further,* that any party aggrieved by any award made under the provisions of this section may appeal therefrom to said board within five days after the receipt of said notice.

SECT. 13. *The state shall pay to the owner of any animal killed under the provisions of section ten of this act one-half of its appraised*

*value; but if upon a post-mortem examination it shall be found that the slaughtered animal was not affected with tuberculosis, then the animal so killed shall be paid for at its full appraised value: provided, that the state shall not pay for any diseased animal so killed if the animal has not been in the possession of its present owner three months previous to the day of slaughter.*

SECT. 14. When any person shall be shown to have knowingly brought into this state an animal suffering or suspected to be suffering with tuberculosis, or to have concealed the existence of such disease in any animal owned by him, such person shall not be entitled to any compensation for the animal slaughtered under this act, and shall be deemed guilty of a misdemeanor, and upon conviction shall be fined for such offence not exceeding one hundred dollars.

*Note.*—The Board of Agriculture of Rhode Island state that they pay one-half limited appraised value.

#### CONNECTICUT.

[General Statutes of Connecticut, 1888, Chapter 101.]

This act provides for a State Board of Agriculture, to have general charge of the matters.

SECT. 1694. There shall be a state board of agriculture, consisting of the governor, four persons appointed by him with the consent of the senate, and one person from each county appointed by the incorporated agricultural society therein, or, if there are more of such societies than one in any county, then by all or in rotation by each, as they may agree.

SECT. 1702. The state board of agriculture, or in case said board shall appoint commissioners on diseases of domestic animals under the provisions of section 1700, then said commissioners may, when in their judgment the public good shall require it, cause to be killed and disposed of afterward as in their judgment may be expedient any animal or animals which in their judgment are infected with or have been exposed to and are liable to communicate to other animals any contagious disease.

SECT. 1703. The commissioners shall cause all animals, before being killed under the provisions of the preceding section, to be appraised at their actual value at the time of appraisal, either by agreement in writing between the commissioners and the owner or keeper of such animals, or, in case they cannot agree, by three appraisers acting under oath, one of whom shall be named by the commissioners, one by the owner or keeper of such animals and the third by the

two so named, a majority of whom may make such appraisal; and in case the owner or keeper of such animals neglects or refuses on application of the commissioners to name an appraiser, or the two appraisers named as before provided cannot agree upon a third, then any justice of the peace of the town in which such diseased animals are, shall, upon application of the commissioners, name such appraiser; *and the appraised value of such animal, if killed, shall be paid to the owner thereof*, and one dollar shall be paid to each appraiser, and one dollar to the justice, if any be called to act, by the state, upon the approval of the governor.

#### PENNSYLVANIA.

Pennsylvania is acting under an act approved May 9, 1889. The matter is vested in the Board of Agriculture.

SECT. 3. When it shall be necessary or expedient to kill any animal or animals to prevent the spread of contagious disease, it or they shall first be appraised by sworn appraisers, *who shall have due consideration for the actual condition of the animal or animals at the time of appraisement*; and the owner or owners shall be entitled to receive from the secretary of the state board of agriculture a certificate of value, which may be paid from current appropriations and by a subsequent appropriation by the legislature: *provided*, that the amount of such certificates issued in any one year shall not exceed the sum of twenty-five hundred dollars.

This Board is informed by the secretary of the Board of Agriculture of Pennsylvania that “An act is now before the Legislature of that State, which passed three readings and final passage in the Senate two years ago, and passed the House up to and including the second reading, all without a single negative vote or word of objection, and it has been endorsed by the agricultural bodies to which it has been offered.”

Section 5 of this proposed act provides —

that when it shall be deemed necessary to condemn and kill any animal or animals to prevent the further spread of the disease, and an agreement cannot be made with the owners of the value thereof, three appraisers shall be appointed, who shall under oath or affirmation appraise the animal or animals, *taking into consideration their actual value and condition at the time of appraisement* and such appraised value shall be paid in the same manner as other expenses under this act provided for: *provided, that not more than twenty-five dollars shall*

*be paid for any infected animal of grade or common stock, and not more than sixty-five dollars for any infected animal of registered stock.*

## ILLINOIS.

[Laws of Illinois, 1887, P. 8.]

SECTION 1. That the governor shall, with the advice and consent of the senate, appoint three practical stock graders, not more than two of whom shall be members of the same political party, who shall constitute a board of live stock commissioners, etc.

SECT. 2. When the board, upon the written report of a state veterinarian or any of his assistants, determine that any animal is affected with or has been exposed to any dangerous, contagious or infectious disease, the board or any member thereof may agree with the owner upon the value of such animals or property; and in case such agreement cannot be made, said board or the member acting in behalf of the board may appoint three disinterested citizens of the state to appraise such diseased animal or exposed animals or property. *Such appraisers shall subscribe to an oath* in writing to fairly value such animal in accordance with the requirements of this act, which oath, together with the valuation fixed by said appraisers, shall be filed with the board and be appraised by them.

SECT. 9. All claims against the state, arising from the slaughter of animals as herein provided for, shall be made to said board of commissioners under such rules and regulations as they may prescribe. It shall be the duty of said board of commissioners to determine the amount which shall be paid in each case on account of animals so slaughtered, *which, in case of animals of the bovine species, shall be based on the fair cash market value thereof for beef or for use for dairy purposes*, not to exceed seventy-five dollars per head, and in cases of equine species, on the fair cash market value thereof, not exceeding one hundred dollars per head, and report the same to the governor; and the governor shall endorse thereon his order to the state auditor, who shall thereupon issue his warrant on the state treasurer for the same.

This Board is informed that the Board of Illinois pays compensation in cases of glanders only.

## OHIO.

[Revised Statutes, 1892, Volume 2.]

SECT. 7466. *Be it enacted by the General Assembly of the State of Ohio*, That the governor shall, with the advice and consent of the

senate, appoint three persons, who shall constitute a board of live stock commissioners, who shall hold their office in the order in which they are named; the first for one year, the second for two years and the third for three years, and their successors in office shall be appointed for three years each. They shall meet as soon as practicable after their appointment, and after taking the oath of office shall elect from their number a president and secretary.

SECT. 7473. When, in the opinion of the commission provided for by the act of which this is supplementary, it shall be necessary, to prevent the further spread of any dangerous contagious or infectious disease among the live stock of the state, to destroy animals affected with or which have been exposed to any such disease, it shall be determined what animals shall be killed, and shall appraise or cause the same to be appraised by disinterested citizens, as heretofore provided, and cause such animals to be killed and their carcasses to be disposed of as in the judgment of the commission will best protect the health of the domestic animals of the locality: *provided*, that no animals shall be appraised except cattle affected with contagious pleura-pneumonia, or cattle, sheep, or swine affected with foot and mouth disease, or such as have been exposed thereto; nor shall any animal be slaughtered under the provisions of this act unless first examined by a competent veterinarian in the employ of the commission, and the disease with which it is affected or to which it has been exposed adjudged to be a dangerous and contagious malady.

SECT. 7474. In case of the destruction of any animal under the provisions of this act, *the compensation to be paid for the same by the state shall be computed upon the basis of the actual value of the diseased animal, if any, at the time of slaughter; for any animal that has been kept in the same building or enclosure, two-thirds of such value; and in case of other animals destroyed for extinction of such disease, the full value of the same, without reference to the suspicion of contagion: provided*, that no compensation shall be made to any person who may have brought animals into the state affected with such contagious disease, or from a district in which such contagious disease existed, or who may have wilfully concealed the existence of such disease among his stock or on his premises, or may have by wilful neglect or purposely contributed to the spread of such contagion; *and in appraising animals to be slaughtered as herein provided*, no allowance shall be made on account of such animals being thoroughbred or pedigree stock.

## I O W A .

[Laws of Iowa, 1884, Chapter 189.]

Section 1 provides for the appointment of a State veterinarian, who shall have charge of the matter.

SECT. 6. Whenever, in the opinion of the state veterinary surgeon, the public safety demands the destruction of any stock under the provisions of this act, he shall, unless the owner or owners consent to such destruction, notify the governor, who may appoint two competent veterinary surgeons as advisors; and no stock shall be destroyed except upon the written order of one of the state veterinary surgeons, countersigned by them and approved by the governor; and the owners of all stock destroyed under the provisions of this act, except as hereinafter provided, *shall be entitled to receive a reasonable compensation therefor, but not more than its actual value in its condition when condemned*, which shall be ascertained and fixed by the state veterinary surgeon and the nearest justice of the peace, who, if unable to agree, shall jointly select another justice of the peace as umpire; and their judgment shall be final when the value of the stock does not exceed one hundred dollars, but in all other cases either party shall have the right of appeal to the circuit court, but such appeal shall not delay the destruction of the diseased animal. The state veterinary surgeon shall, as soon thereafter as may be, file his written report thereof with the governor, who shall, if found correct, endorse his finding thereon; whereupon the auditor of the state shall issue his warrant therefor upon the treasurer of the state, who shall pay the same out of any moneys at his disposal under the provisions of this act: *provided*, that no compensation shall be allowed for any stock destroyed while in transit through or across this state, and that the word "stock" as herein used shall be held to include only neat cattle and horses.

## MISSOURI.

[Revised Statutes of Missouri State University, Article 2.]

SECT. 9. Whenever a county court or its legal substitute shall find, from the evidence presented by any citizen of the state, as provided in section 8 of this act, that said citizen is the proprietor of any animal actually affected with glanders or *mal de coit*, or contagious pleuro-pneumonia; that the animal is in quarantine under this act; that said animal became so diseased accidentally, and not, however, by any inhuman, gross or wilful neglect or scheming on the part of the said proprietor; that said diseased stock was not already diseased



when it came in the possession of said proprietor ; that said diseased stock came already afflicted with said disease from another state, or any territory, or from any other country ; that *said diseased stock had not been exposed outside of Missouri three months prior to its importation in this state to any of the said contagious or infectious diseases*, — it shall be the duty of said court to appoint three disinterested parties, who shall be stock owners, to go and appraise said diseased quarantine stock. Said appraisers shall bring with them a sheriff, shall at once proceed to the locality where said quarantine stock shall be, and *there make an appraisement, taking into consideration the condition of the said stock and said disease with which it is afflicted, and determine its value, and immediately report the same in writing to said court : provided that in no case shall the appraised value be more than one hundred dollars for any one animal*, etc. Said court upon receipt of such appraisement shall report the same to the governor ; the governor shall endorse thereon his order to the state auditor for payment of the same ; thereupon the said auditor shall issue his warrant for the same to the state treasurer.

## INDIANA.

[Revised Statutes of Indiana, 1894, Volume 2.]

Section 2871 provides for the establishment of a State Live Stock Sanitary Commission.

SECT. 2880. Whenever said commission shall direct the killing of any domestic animal or animals, it shall be the duty of the commissioners to appraise the animal or animals condemned, and *in fixing the value thereof the commissioners shall be governed by the value of said animal or animals at the date of appraisement*.

SECT. 2882. When any animal or animals are slaughtered under the provisions of this act by order of the commission, the owner thereof shall be paid therefor the appraised value as fixed by appraisal hereinbefore provided for : *provided, however*, that the right of payment for animals slaughtered by order of the commission under the provisions of this act shall not extend to the owners of animals which have been brought into this state in a diseased condition, or from a state, territory or district in which the disease with which the animal is affected, or to which it has been exposed, exists ; nor shall any animal be paid for by the state which has been brought into the state in violation of any law or quarantine regulation thereof, or the owner of which shall have violated any of the provisions of this act, or disregarded any rule or regulation or order of the live stock sanitary commission or any member thereof, made under the pro-

visions of this act; nor shall any animal be paid for by the state, which came into the claimant's knowledge that such animal was diseased or suspected of any disease, or having been exposed to any contagious infectious disease.

K A N S A S .

[General Statutes of Kansas, 1889, Volume 2.]

Section 6802 provides for the appointment of a Live Stock Sanitary Commission for the State of Kansas.

SECT. 6805. When, in the opinion of the commission, it shall be necessary, to prevent the further spread of any contagious or infectious disease among the live stock of the state, to destroy animals affected with or which have been exposed to any such disease, it shall determine what animals shall be killed and appraise the same as hereinafter provided, and cause the same to be killed and the carcasses disposed of as in its judgment will best protect the health of the domestic animals of the locality.

SECT. 6806. *Appraisement.*—Whenever, as in the fourth section of this act provided, the commission shall direct the killing of any domestic animal or animals, it shall be the duty of the commissioners to appraise the animal or animals to be killed, and shall make an inventory of the animal or animals condemned; and *in fixing the value thereof the commissioners shall be governed by the value of said animal or animals at the date of appraisement: provided*, that no animal or animals shall be appraised except those affected with contagious pleuro-pneumonia of cattle or foot and mouth disease, or such as have been exposed thereto.

SECT. 6810. When any animal or animals are killed under the provisions of this act by order of the commission, the owner thereof shall be paid therefor the appraised value as fixed by the appraisement hereinbefore provided for: *provided*, the right of indemnity on account of animals killed by order of the commission under the provisions of this act shall not extend to the owner of animals which have been brought into the state in a diseased condition, or from a state, country, territory or district in which the disease with which the animal is infected, or to which it has been exposed, exists. Nor shall any animal be paid for by the state which may be brought into the state in violation of any law or quarantine regulation thereof, or the owner of which shall have violated any of the provisions of this act, or disregarded any rule, regulation or order of the live stock sanitary commission, or any member thereof. Nor shall any animal be paid for by the state which came into the possession of the claimant with the

claimant's knowledge that such animal was diseased or was suspected of being diseased, or of having been exposed to any contagious or infectious disease. Nor shall any animal belonging to the United States be paid for by the state.

The following is a copy of the order issued in the Dominion of Canada as to the use of tuberculin : —

His Excellency, in virtue of the provisions of the “ Animals’ Contagious Diseases Act,” and with a view to preventing the introduction of the disease of tuberculosis among neat cattle imported for the improvement of Canadian stock, and by and with the advice of the Queen’s Privy Council for Canada, is pleased to order that the following regulations for the guidance of all officers in charge of animals’ quarantines within the Dominion shall be and the same are hereby adopted : —

#### REGULATIONS.

That all neat cattle arriving in such quarantines be tested by the Koch tuberculin lymph, in order to detect the presence or otherwise of the disease of tuberculosis in any of its stages among them.

That no animal found by the reaction test of the lymph mentioned to be affected by that disease be allowed to leave the precincts of the quarantine unless for the purpose of returning such animal to the place whence it came, the owner to have the alternative of taking back any animal found to be affected with tuberculosis or having it slaughtered without compensation. The department of agriculture to furnish tuberculin lymph for the purpose of making the necessary tests.

(Signed) JOHN J. MCGEE,  
*Clerk of the Privy Council.*

#### RECOMMENDATIONS.

The Board have thus endeavored to give, thoroughly and impartially, the history of legislation in the matter of compensation for diseased animals in this State; they have also collected and presented many of the arguments, both for and against such payment, which have been advanced; and they have presented herewith portions of the laws of many of the other States bearing upon the matter.

In conclusion, the Board desire to state, as a result of their study of the matter, that they are impressed with the practical weight of many of the arguments that are advanced in favor

of paying a full value, on a limited basis, for all animals destroyed for the public good. In arriving at this conclusion they have been very largely governed by the fact that, by using tuberculin as a means of diagnosis, they are now condemning and finding diseased animals that to all external appearances are perfectly healthy and sound, and that have a full earning capacity for their owners.

Without desiring to discuss further the policy involved in the adoption of such measures, they feel that if your honorable body can constitutionally and safely enact a law authorizing a payment for animals condemned as tuberculous, which will fairly enable their owners to replace them with healthy stock, it will practically result in a benefit to the community at large which will be commensurate, at least, with its cost. As a result of their experience in this work during the last two and one-half years, the Board are thoroughly satisfied that tuberculosis is widely scattered among the neat stock throughout the Commonwealth; and that it will be impossible to stamp it out unless some vigorous policy is adopted which shall also provide for a thorough and systematic examination upon a scientific basis of every head of neat stock within its limits.

The efficient performance of this work will necessarily involve the expenditure of a considerable sum of money; but the benefit which will be derived therefrom will, in the opinion of the Board, be greater; and they feel that the State can well afford, in accomplishing this end, not only to pay the administrative expenses, but, if it is necessary in order to stamp out this disease, to also pay whatever may be required to fairly indemnify the owners of the animals which are destroyed as a result of this policy. They believe, further, that if the farmers and dairymen lose the cost of these animals, or any considerable portion of it, it will be a serious blow to the agricultural interests of the State. They feel that if the valuation of the animals can be properly limited, so that the owner shall not receive any greater sum from the State than he would receive if the animals were sold in the open market, as they stand with all their faults, but under the assumption that both buyer and seller are ignorant of the existence of tuberculosis, as disclosed by the tuberculin test, there could be but little encouragement to practise fraud upon the Commonwealth. It

is further believed that if such a policy as this is instituted it will encourage the hearty co-operation of owners in the work ; and, as a result, the administration will be easier, more efficient, and will possibly cause but little increase in the ultimate expense over that of the present method. If coupled with this a limited time of ownership is required, and a proper quarantine maintained against all animals coming into the State, there will be but little danger of the introduction of diseased animals from without its limits for the purpose of obtaining the compensation paid by the State.

If full indemnity upon this plan is adopted by the Commonwealth, the burden will be divided fairly between the community at large and the farmers, who not only pay their share of the tax, but in addition have to take upon themselves the cost of maintaining the animals during the necessary quarantine, and who also suffer to a considerable degree from the attending interruption to their business.

FREDERICK H. OSGOOD, *Chairman*,  
CHARLES P. LYMAN, *Secretary*,  
MAURICE O'CONNELL,  
LEANDER F. HERRICK,  
CHARLES A. DENNEN,

*Board of Cattle Commissioners.*



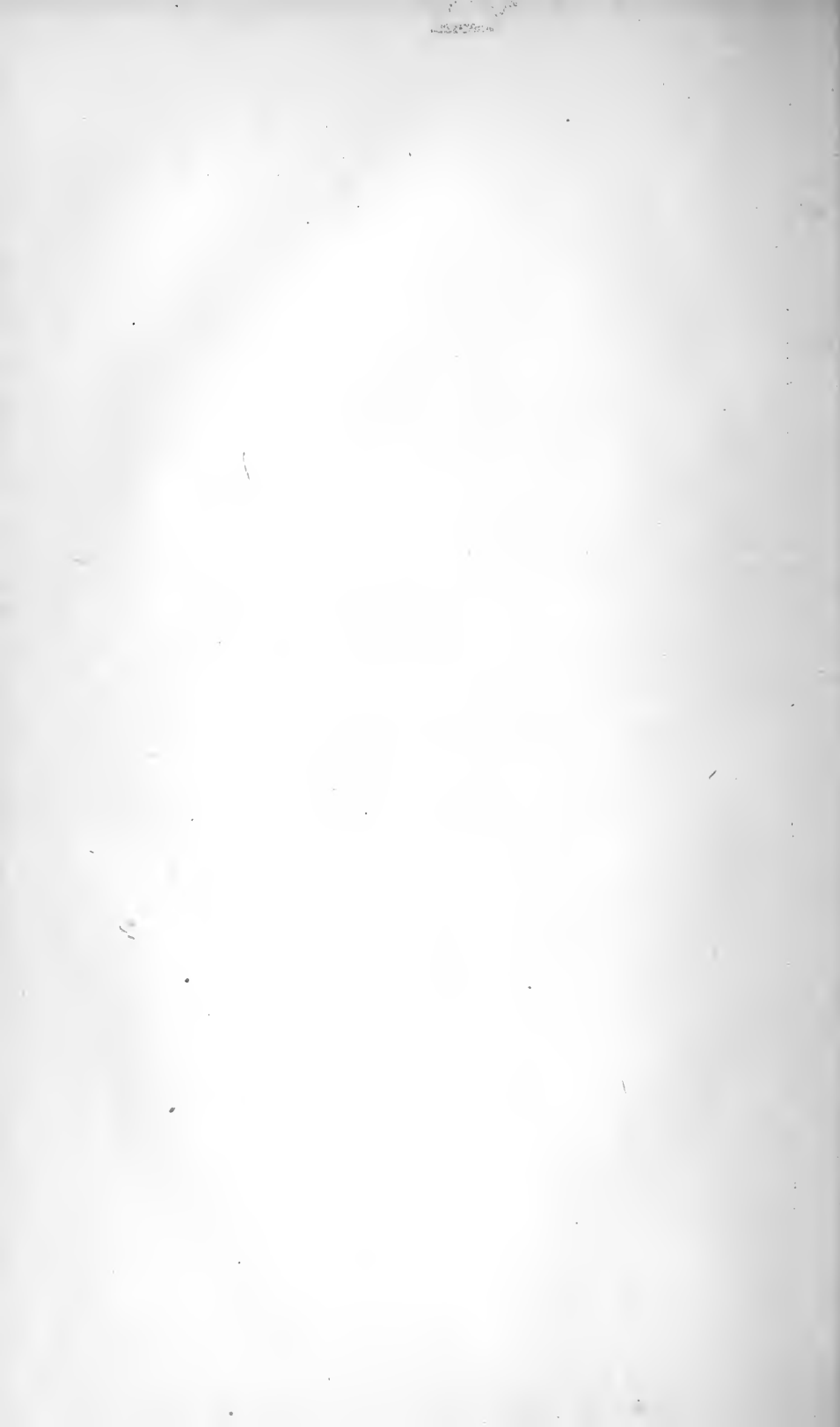
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## APPENDIX.

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# Report of Proceedings of the First Convention of Cattle Inspectors of Massachusetts, held at Continental Hall, Worcester, Oct. 25 and 26, 1894.

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*Present:* L. STOCKBRIDGE, *Chairman*, DR. CHARLES P. LYMAN, *Secretary*, Prof. F. H. OSGOOD, L. F. HERRICK, MAURICE O'CONNELL, *Cattle Commission*, and cattle inspectors from all parts of the State.

Among the invited guests and speakers were Prof. D. McEachran, of Montreal, Canada; Dr. Noah Cressy, of Hartford, Conn.; Hon. William R. Sessions, Secretary State Board of Agriculture; Hon. J. H. Walker, M. C., Worcester; Henry A. Marsh, Mayor of Worcester.

The meeting was called to order at 11 o'clock A. M., Oct. 25, 1894, L. Stockbridge in the chair.

THE CHAIRMAN. *Gentlemen of the Convention, Inspectors:* This meeting will please come to order. I have the pleasure of introducing to you his Honor Mayor Henry A. Marsh, of this city, who will make a few remarks on the subject which interests us all.

## ADDRESS BY HON. HENRY A. MARSH.

*Mr. Chairman and Gentlemen of the Convention:* A very pleasant duty has been assigned to me this morning, and it gives me pleasure that I am able to discharge it. It is to extend to you a cordial and hearty welcome to our city, — the heart of the Commonwealth.

We have here a city of which we may be justly proud, a city that has unusual transportation facilities, a diversity of manufacturing interests; it is a city of homes, a city full of educational institutions.

I believe in such conventions as this. It seems to me that a great good can be accomplished by them; that such gatherings are both pleasant and profitable, for you make pleasant acquaintances, you renew old friendships, and above all, you come together to confer upon a subject which has engaged your thoughts.

In the recent law which has been enacted in this State, there are some provisions which are not fully understood, — some questions

concerning the new act relating to contagious diseases in animals, which, perhaps, have already occurred to you, and perhaps, Mr. Chairman, have been solved by you.

One question is whether swine are *cattle* within the meaning of the law; (and I may say here that one of the local questions of to-day relates to the keeping of swine at the city farm). Another question, How far do boards of health in cities have authority in the appointment of inspectors independently, where boards of aldermen have the authority to appoint them and fail to do so? Doubtless these are among the many questions which may have occurred to you, and you may have reached a solution of them, or may reach a solution in this convention.

I am exceedingly sorry to say that I have received a telegram stating that his Excellency Gov. Greenhalge will not be able to be present this morning. He told me yesterday afternoon that he expected to be here. I wish that you might hear his earnest words; but I would like to read to you, very briefly, what he said at the Athol Fair, as showing his interest in the good work that is being done by the Cattle Commission.

After the informal reception at the president's tent, Gov. Greenhalge addressed the people from the judge's stand. He said that there were three important factors connecting the State with local agriculture, and they were: the Board of Agriculture, the great Agricultural College at Amherst, and the Cattle Commission; there was also a fourth which is necessary, and that is the farmer himself, the citizen of Massachusetts, with all his belongings, his wife, and daughters. He spoke especially of the Cattle Commission, which is doing a valuable work in its attempt to exterminate the disease of tuberculosis, which is more important than the discovery of the north-west passage. The improvement of the cow means the improvement of man, for upon the cultivation and development of the cow depends the life of your wife, your child, and yourself.

I am now informed that the governor will probably be here, but late in the afternoon, when you will hear him express his views in his own bright way.

I hope the sessions of your convention will not only be profitable, but so agreeable that, as you take your departure to your several homes, you will carry away with you nothing but pleasant impressions of your visit to our beloved city.

THE CHAIRMAN. *Gentlemen:* It is proper at this moment that I should say a very few words for the Cattle Commission, in relation to the calling of this meeting.

You are, all of you,— if you are cattle inspectors,— aware of the herculean task that the Cattle Commissioners have assumed, in which you are sharers.

In these modern times — quite modern, too — we have come to recognize, more and more, certain diseases as communicable, as contagious diseases, which a few years ago were not so recognized; and among them, especially, is the disease of consumption. I prefer at this time to call it “consumption,” the name we know it by in its most terrible ravages upon the human family, for then we know what it is.

We recognize to-day that disease as contagious; as communicable from man to man; from man to animal; from animal to man, and from animal to animal. We are all in the same boat — the human family and our animals — in relation to the dissemination and perpetuation of this disease. But the human, as controlling the situation, is the first factor, and to protect the human family from the wonderful ravages of this disease and from its being communicated from one to another, we have had laws enacted which give the power and right to seize animals and destroy them, for the protection, first, of man, and second, for the protection of other animals which are not affected. To accomplish this object, certain laws have been passed by the Legislature, — the best we could devise, and I will say, also, the best that our wise legislators could devise,— and it is in enforcing these laws that we ask the co-operation of all the cities and towns in the Commonwealth, in the appointment of wise and judicious cattlemen in every city and town to work in co-operation with the Cattle Commission, that we may move onward in an attack upon this disease, harmoniously.

There are many questions, a *great* many questions that surround us; there are a great many doubts about it, but, in order that we may accomplish the most good, it is desirable that all doubts should be removed, and therefore it is necessary that there should be perfect harmony between the Commission, who are the final arbitrators in these cases, the boards of health in cities and towns, and the inspectors of cattle all through the State. This convention was called that we might understand each other and that you all might know what the Cattle Commission are doing and the methods under which they proceed,

and work in harmony with the Commission, with the other inspectors and boards of health in the State.

At a suitable and proper time, I shall endeavor to call upon these gentlemen invited to be present, of whom, I am thankful to say, I see so many; I shall call upon you inspectors and members of boards of health to state your difficulties and let us know what obstacles bother you in enforcing the law, that the Cattle Commission may do everything in its power to explain and give instruction as to what we know about this disease, and thus be of mutual assistance to each other.

At some point during these deliberations here, the future work of the Commission will be mapped out by its members.

I now have the pleasure of introducing to you Dr. Charles P. Lyman, of the Board of Cattle Commissioners, who will read a paper upon this subject which cannot fail to interest you. Gentlemen of the convention, Dr. Charles P. Lyman, of Boston.

#### DR. LYMAN.

*Mr. Chairman, Gentlemen of the Convention:* I am quite well aware that the chief part of our interest and work, at this time, is embraced in the subject of tuberculosis; that we have really come here to discuss that very important disease, as affecting neat cattle, in all of its various phases; but the Commission has decided that something should be said about the other diseases that are mentioned in our Act, and it has fallen to my lot to be the one to address you upon them, the privilege of treating tuberculosis having been assigned to Prof. Osgood, of this Board.

I shall detain you but a very short time, for I know that you will prefer to discuss experiences regarding our work, after two years of trial, rather than to listen to descriptions of diseases that may be read in many of the excellent books that are published on the subjects, notably, those issued by the United States Bureau of Animal Industry, and that are free to all for the asking.

If this is done fairly and freely, as it should be, we shall all of us go home, I am sure, feeling that our time has been profitably spent.

The diseases which we are now to consider are all of them contagious, and it should be a thoroughly recognized fact that, being so, they are absolutely dependent for their origin upon a specific germ, as it is called. This germ may very well be likened to a seed. Each of the diseases has its special germ, that is, a glanders germ cannot produce any other disease than glanders, any more than a

seed of corn can grow into any plant other than a corn stalk ; and in the same way, glanders cannot be produced in a horse unless the seed of glanders has been planted in him, any more than a corn stalk can grow unless the seed corn has, in some way or other, got into the land from whence it has sprung. This simile may be carried still further ; we all of us know that corn will grow much more readily upon some kinds of soil than it will upon others ; further, that there are some soils and some climates in which it cannot be made to grow at all. So it is exactly with the germs of contagious disease ; some horses will contract glanders very much more easily than will others, under the very same circumstances ; some, a few, will not take it at all, under ordinary exposure. This simply means that, for some reason, the system of such an animal is not a good field, at the particular time, for the propagation of that germ ; for it is just as necessary that the disease germ be planted upon proper soil, as it is that grain is so planted. There are, perhaps, many steps in this preparation of the animal body that cannot be fully described ; but we do know that very oftentimes the necessary state of the system is brought about because the animal has been subjected to influences under which it is impossible that a healthy, vigorous condition of body can be maintained. These influences can be roughly stated to be confinement in damp stables, or those without good sunlight, want of proper exercise, a too confined air space, the breathing of air that is contaminated with the gases of decomposing animal and vegetable matters, as from a manure cellar, long exposure to cold or heat, too little food, food that is not sufficiently nutritious, food that is over stimulating, and so on.

It is further a fact that certain animals can withstand these debilitating influences for a much shorter time than others. These, we say, are predisposed to disease. This predisposition to disease is often an inherited quality, and for this reason it is not profitable, or desirable, to raise stock from any but sound, vigorous parents.

The contagious diseases of animals named in the Act are glanders and farcy, contagious pleuro-pneumonia, tuberculosis, Texas fever, foot and mouth disease, rinderpest, hog cholera, and rabies.

Of these, three, contagious pleuro-pneumonia, foot and mouth disease, and rinderpest, have no foothold in the United States at the present time, and I suppose that they are named in the Act so that they may be dealt with promptly if any of them should, unfortunately, at any time, come to us from abroad.

CONTAGIOUS PLEURO-PNEUMONIA, as we all of us know, and many of us remember, was landed here years ago ; was fought hard and

long by the Cattle Commission of the State, and was *exterminated*, and it is a matter of historical fact that Massachusetts was the first country in the *world* to stamp out this disease; she was also the first country to institute the *only* measures for its extirpation that have ever proved successful; and in all of those countries where contagious pleuro-pneumonia has ever gained a foothold it still exists, unless they have adopted and courageously continued to apply the *Massachusetts* doctrine for its extirpation.

I want this remembered to-day, for again it happens that Massachusetts is to be the first country, so far as we are aware, to undertake, systematically, to purify its herds from another contagious disease, the ill effects of which are more far reaching and grave than were those of contagious pleuro-pneumonia.

FOOT AND MOUTH DISEASE has never but once gained a foothold in New England, and then it was quickly recognized and entirely stamped out, within a few days, under the management, largely, of Dr. E. F. Thayer, since deceased, then of the Massachusetts Cattle Commission. The contagious principle of this malady is strong, and quick in its effects; the diseased animals are easily recognized, and therefore its extirpation is an easy matter when compared to the management, in this respect, of either contagious pleuro-pneumonia or tuberculosis.

RINDERPEST has never reached us, and, as matters now stand, it seems scarcely possible that it will ever do so. It apparently has its home in the extreme easterly parts of Europe, from whence it is occasionally extended into some of the more westerly countries of that continent.

It has reached Great Britain upon two separate occasions, causing there each time tremendous losses, for its death rate is from sixty per cent to ninety-five per cent, and nearly all of the exposed animals develop the disorder.

Here again, however, the very openness of its methods of extension, the clearness with which diseased animals are recognized, the rapidly following death, and the shortness of its incubative period, render its management and extirpation comparatively easy; although its ravages *must* always be great, for a little time after its introduction.

TEXAS OR SPANISH FEVER we are all of us more or less familiar with, and although our losses from it here in New England have been somewhat large in the past, at times, the now very excellent laws of the general government upon the subject, the efficient Bureau

of Animal Industry, in the National Department of Agriculture, and our experience of the efficiency of both of these during the last few years, seem to offer almost a guarantee that we shall not have again to deal with this cattle scourge to any great extent at any rate.

HOG CHOLERA continues to make us more or less frequent visits, and, at times, to cause heavy individual losses. If it is realized that this is surely a contagious disease, and that it may as surely be prevented by proper isolation of the herd from all sources of outside contamination, its occurrence will be still less frequent. If, unfortunately, it is introduced, its ravages may be very much lessened by a prompt and thorough separation of the sick from the well animals; putting those that are healthy into new temporary quarters, quite away from the buildings, and thoroughly accessible to pure air and sunlight. This sorting out should be made twice a day, for the first few days of the outbreak, and continued at proper intervals, so long as any new cases occur among those that were taken from the pens in which the disease made first its appearance.

GLANDERS AND FARCY shows its contagious principle upon the horse family only, although it is communicated to man, with fatal results, by inoculation.

The disease is *one*, that is, its germ is identical, although from long usage the effect of the germ upon the respiratory tract is called glanders, and upon the more superficial lymphatic vessels and glands, farcy.

Glanders is characterized from the nostrils, a swelling of the lymphatic glands under the jaws, and the presence of ulcers upon the membrane, covering the partition which divides one nostril from the other.

Farcy is shown by a swelling of one or more of the legs, with lameness, and the appearance of small hard bunches under the skin of the swollen limb, or other parts of the body, which, after a little time, open into unhealthy looking sores, having little or no tendency to heal. Public stables, mangers, watering troughs, and hitching posts are the common carriers of the disease, although it can, of course, be conveyed in many other ways, upon occasions.

The great difficulty in getting rid of glanders lies in the facts that it does not always declare its presence in the animal certainly and surely, and that even when an animal is known to be affected he is not reported, or otherwise safely disposed of, because he is, very frequently, able to work satisfactorily, and the owner does not care to become a public benefactor to the extent of the amount invested in

the animal. This, however, probably always arises because the danger to the lives and property of others is not fully appreciated by him.

There is a considerable reason for believing that before much longer, and by the help of a substance called *mallein*, we shall be able to make as safe and sure a diagnosis in the presence of this disease as we are now able to make in the presence of tuberculosis, and when this time comes, as it probably will in the very near future, this problem will become infinitely less complex, and we shall be able to afford Massachusetts horse owners a practical immunity from a disease which has, for years, been a very costly one to them and incidently to save the lives of a few men.

The Commission should have its own laboratory for this and other investigations, which it is now able and willing to make as soon as the proper appliances can be furnished.

RABIES is a most distressing disease, usually spread from and by dogs, although, at certain times and places, cats have been wide and sure disseminators of it. It is inoculable to man and all warm blooded animals, with practically always fatal results following a most distressing and painful illness. There have been two outbreaks in Massachusetts during the last twenty years. Its symptoms are so fully described on the reverse side of the dog licenses in this State, and these are so accessible to you all, that nothing need be said in that direction. There is one thing that should be impressed upon the minds of all those whose position may make it necessary for them to consider measures to be undertaken in the face of an outbreak of the sort, which is that when a dog, supposed to be mad, has bitten any human being, the animal should, if at all possible, be securely confined, rather than killed, until the nature of the disorder can be ascertained beyond all doubt. This is occasionally as important as the life of the bitten individual.

Of the treatment of bitten people nothing need be said here. The world knows of the discoveries of Pasteur in this direction, and what is claimed for them. Without entering into a discussion of the merits of this preventive treatment, one way or another, it would seem that common humanity demands that a bitten person be allowed this chance for his life, remembering always that bites upon uncovered parts of the body are much more likely to be followed by bad results than when the teeth of the dog have first bitten through cloth, and so been wiped to some extent just before entering the flesh.

Outbreaks of rabies, with all their dire results, may be surely and sharply limited by a law which demands that secure muzzles shall be



applied to all of the dogs that are in the district over which the trouble extends ; that directs that all unmuzzled dogs shall be killed, after a certain proper time of notice, wherever found ; that the muzzles shall not be removed until a full month, at least, shall have passed after the last known case has been properly disposed of, and then only at the direction of the proper authority, who should also be given *all* of the power necessary to compel a full compliance with these provisions.

Whenever, with us, any law of this kind has been proposed to the Legislature, it has met with great opposition. We have been told that there is no such disease as rabies ; that the application of muzzles would drive certain dogs mad ; that the misery of the poor muzzled dog was so great that infinitely more suffering would be caused than prevented by such an inhuman law. These opinions, and they can be nothing more than the opinions of those who have had no opportunities for intelligent observation, are scarcely worth discussion here.

Rabies is an old, well recognized, and *dreadful* disease, which cannot be caused by anything except its own virus. As it now stands, I should consider, under Sect. 37 of Chap. 491 of the Acts of 1894, that this matter had been definitely put into the hands of the Board of Cattle Commissioners, and that, under Sect. 38 of the same Act, they would be at liberty to make an order enforcing these very regulations ; and were another outbreak to occur now, I should consider it my duty to do all that I could to urge the Commission to take such action.

An interesting discussion by the inspectors and others present on the subjects of this paper followed.

THE CHAIRMAN. The time is come when we should hear the paper on "Tuberculosis," and I have the pleasure of introducing Prof. F. H. Osgood, of Boston.

#### DR. OSGOOD.

*Mr. Chairman, Gentlemen :* Tuberculosis is a general term applied to a class of diseases of which consumption in the human family is the common type. It is the most fatal of all the disease to which man is subject — one seventh of the entire death rate of the world is said to be due to it. It is also the most widely distributed and destructive disease found among cattle. It is a contagious diseases capable of being transmitted from man to the lower animals and *vice versa* ; and, like all other contagious diseases, it is due to a specific virus, the bacillus tuberculosis which is a vegetable parasitic micro-organism, measuring about one seventh-thousands of an inch in length.

When this bacillus finds lodgment in an animal, under favorable conditions, it multiplies with great rapidity. As a result of such multiplication in any of the internal organs, small nodular bodies are formed, called "tubercles." As they grow older, a process of softening takes place and the tubercles become yellow and cheesy. This cheesy mass may soften to the consistence of cream, or, from the deposition of lime salts in it, may become hard. These tubercles may and do occur in any organ of the body. The idea which so many have that tuberculosis is purely a lung disease is radically wrong. This disease may be transmitted from animal to animal, or animal to man; first, by inhalation of dust charged with the bacilli, second, by the ingestion from the meat or milk of tubercular animals, and third, by inoculation through a cut or wound.

In view of the prevalence of bovine tuberculosis in Massachusetts, and the dangers of its being communicated from animals to man, there is no doubt that its prevention and control are among the most important sanitary questions before the public at the present time.

Viewed from an agricultural standpoint it assumes equal proportions. I quote significant facts from a paper read before the Massachusetts Veterinary Association, in May last, by the Hon. William R. Sessions, Secretary of the State Board of Agriculture, where it is shown that the dairy is easily the most important branch of farming in Massachusetts. The State census of 1885 gives the latest reliable figures. By that, the value of dairy products was \$13,080,526; hay, \$9,676,893; other staple products, \$4,578,763; fruit, \$2,386,290; vegetables (potatoes are included in staple products), \$2,762,941; animal products, \$5,398,439. The hay crop is quite largely dependent upon the dairy interest, and the animal products are so largely dependent upon the dairy as to be almost a part of it. The veal product is certainly a dairy product, and most of the veal of the State is grown on the skimmed milk of our dairies.

Again it is shown that the neat stock of the State is rapidly decreasing; that this decrease began simultaneously with the agitation of the prevalence of tuberculosis among our cattle, and its attendant danger to human life and health. That for thirty years, prior to that time, the cattle industry had steadily increased until 1890, when 200,658 cows and 62,549 neat cattle other than cows were assessed.

In 1893, there were only 186,806 cows and 47,528 neat cattle other than cows, a decrease of 28,873 in three years. The number of cows had been previously steadily increasing for thirty years, from 149,090 in 1861 to 200,658 in 1890.

These facts are alarming from such a source alone, but especially so when they emanate from one who knows by actual experience

whereof he speaks. The insidious nature of the disease has had much to do with the comparative slowness with which professional and public attention has been directed to it; but the annual loss to the cattle breeders of the country from tuberculosis if it could be computed, would prove to be something enormous. If it be true that the spread of tuberculosis has had such a detrimental effect upon such a vital branch of agriculture, we feel sure that efforts to rid our cattle of this disease cannot but excite the deep interest of farmers, and enlist their hearty co-operation in the application of scientific methods to the desired end.

From the standpoint of public health, the eradication of the disease in the animals from which we derive so large a portion of our nutrition is of the utmost importance. The subject had not been considered of enough importance in our own State, until 1892, to receive even passing attention from the Government, at which time a bill was passed, entitled "An Act to More Effectually Prevent the Spread of Tuberculosis among Cattle." Under the provision of this Act, an earnest endeavor was made by the Board to do all in their power towards the suppression of the disease, but the Legislature not being sufficiently informed upon the subject to fully understand or appreciate the importance of radical measures, the officers, upon whom the enforcement of the law depends, were prevented, by lack of efficient legislation, from carrying on the work so as to obtain the best results, but the Legislature of 1894 realized more fully the importance of the subject, made provision by enlarging the Commission, increasing its powers, and adding to the appropriation, making possible the adoption of a new policy, which it is believed will prove efficient in the suppression of the disease.

You who are constantly brought into contact with these cases, both before and after death, and see the loathsome condition of the internal organs, will appreciate fully the importance of such measures. But one important duty you owe to the community is to inform the owners of such animals of the dangers arising therefrom, taking pains to point out clearly the lesions at the time of slaughter, that State and municipal authorities in your respective districts may become familiar with the facts regarding our dairy animals and its bearing, not only upon the industry of agriculture, but its relation to the public health. Whatever be the opinion regarding the best remedy for such a state of affairs, certain it is that the longer its application is delayed the greater will be the undertaking; the result of experience has shown that radical measures must be adopted, if its extension is to be checked.

Since the discovery, a dozen years ago, of the "bacillus tubercu-

losis," by Koch, and the demonstration of the identity of the disease in man and the lower animals, a growing interest has been manifested in the question of the meat and milk supply, especially in our large cities. This interest has given rise to the establishment of an inspection service, which, notwithstanding its superficial character, has revealed many startling facts respecting the prevalence of tuberculosis among our milch cows and beef cattle, so that, at the present time, there is little or no question concerning its quite general prevalence. Numerous investigations have shown that the products of the dairy are, in some sections, to a most astonishing extent infected with the "bacillus tuberculosis," which, remember, is responsible for the loss of more human lives than any other one germ. Many of the fatal troubles in infants have their origin in tubercular infection. So thoroughly is the contagiousness of the disease now recognized in the human family, that the boards of health of several States have considered the matter of sufficient importance to send out, in great numbers, pamphlets warning the public with reference to the necessity of destroying the sputum of consumptives, and carefully disinfecting the premises which have been occupied by them. Is it not quite time that attention should be given to two important causes of this disease, viz., the use of infected flesh and milk, and the contact of consumptive human beings with healthy animals? Tuberculosis, whether occurring in man or animals, should be classed with other contagious diseases, and treated in a manner consistent with known facts relating to its power of contagion.

#### CAUSES.

The causes are exciting and predisposing, both of which seem in a manner to be essential, owing to the fact that the bacillus is so exacting as to suitable conditions.

The immediate or exciting cause is a contagion, the "bacillus tuberculosis," and without which it is just as impossible for an animal to contract the disease (tuberculosis) as it is to raise a potato or an onion without having placed the respective seeds in a suitable soil. In addition to this there are many accessory or predisposing causes which are important, especially when we consider the possibility of re-infection of dairy stock from the human family, which we must face and provide against. While the preponderance of evidence points clearly to the conclusion that tuberculosis is not as a rule congenital, it is undoubtedly true that it may be, and is so occasionally; but while this direct communication of the disease from the parent to the offspring is of rare occurrence, it is unfortunately true that a strong predisposition is very often so communicated;

hence the danger of breeding from such animals. We should, therefore, lose no opportunity of doing whatever we can to enable the breeder and agriculturist to raise a class of animals that will be free from any predisposition to this disease, and of pointing out to them how to so care for their cattle that they may reduce to a minimum the chance of their contracting the disorder even when they are occasionally exposed. This can only be done by the employment of all of those measures that are known to be efficacious in keeping our animals up to their full vigor and health, that each function may be performed to its full, and in harmony one with the other. It is an undoubted fact that the excessive development of one function, regardless of the general economy, will surely lead to disaster.

An animal is not at all times an equally favorable subject for the development of the bacilli, for we often observe at post mortem examinations old points of infection, where the nodule had become calcified or encysted, pointing to the belief that at time of infection the system was in such a condition as to furnish a suitable breeding ground for its multiplication and spread, but the tone of the system being improved by the early removal of the predisposing cause, a boundary has been gradually set against further invasion. If we expect to keep our animals in health, we must provide not only food and water in sufficient quantity, but we must equally avoid giving them in excess. We must cease to look upon the cow as she is at present considered, as simply a milk machine into which we must crowd all the food it is possible for her to consume, and which in the end is but poor economy, for we awake to the fact that the machine has been run beyond its limit, and is prematurely worn out.

The experiment stations founded by the Government for the purpose of fostering our live-stock and dairy interests have taught the farmer that they will get more milk and butter from a given amount of food if the animals are kept tied up and not allowed exercise; but this teaching is contrary to all physiological and hygienic laws, for it constitutes an enormous drain upon the system which we can never replace.

The amount of disease due to sanitary neglect is enormous; defective and insufficient ventilation, light, and drainage, damp or poorly constructed stables are often the unsuspected roots of many diseases, because they so undermine the constitution of the animal as to render it a suitable breeding ground for any contagion that may gain access to it.

We know that among the traditions which have been handed down to our farmers for generations was one that the warmer and darker our cow stables were kept the greater the return in milk. Aside from the fact that such stables are usually dirty and ill ventilated, and as such lower the general health, we also know that nothing is so favor-

able to the prolongation of the life of the bacillus tuberculosis as darkness, and nothing more destructive than sunlight. Such facts should be brought to the attention of all. The importance of pure air and exercise is clearly seen when we compare any of the statistics which show the very high percentage of infection in milch cows confined in city dairies, where they are constantly housed, with those showing the relative freedom of young cattle, or with the cattle on our Western plains who lead an outdoor life.

It is a well-known fact to you all that the progress of the disease is much more rapid in winter, when the animals are housed, than during the summer months, when the barns are open and animals frequently out. Too early in and in and unbreeding are also important factors, as they undermine the strength and vigor of the animal as well as that of the progeny.

#### SYMPTOMS.

So slow and insidious is the course of the disease that the symptoms may be present but unperceived for a long period of time, even for years. We to-day recognize the fact that symptoms of disease may be present in tubercular animals, but that it is nevertheless a fact that there are no symptoms of the pathognomic of the disease, and that a positive diagnosis can only be made by the aid of the microscope, inoculation experiments, or the tuberculin test. As no organ or tissue of the body is exempt from invasion, it naturally follows that any deviation from health in our neat cattle is sufficient to arouse suspicion. Our experience proves that when we have cleaned out tuberculosis from a herd, as we have done in a number of instances, there is little further need of a doctor to that herd. On the other hand, there are diseases of the various organs that may cause a cough with short hurried respiration, or symptoms which appear to be exactly those of tuberculosis; such a diagnosis is made, the animal is destroyed, and it proves that the symptoms were produced as a result of a nail which, having been swallowed, had gained entrance to the second stomach, and from there penetrated the pleura where it had caused adhesion, but no tuberculosis was present; and so on, indefinitely, could I illustrate, had I the time, and from these very facts, that there was no practicable method of making a positive diagnosis, the disease had been able to get the foothold it has at the present time, but fortunately, owing to the advance of modern science, we have at the present time an agent, "tuberculin," by the aid of which we are enabled to make a positive diagnosis, which method is practicable, and upon which test our future actions will be based.

## TUBERCULIN.

Dr. Koch, who was the first to discover the bacillus, in 1882, was also the one to bring to the attention of scientists, in 1890, what he hoped would prove to be a cure for the disease, under the title of "Koch's lymph," since known as "tuberculin," but, as you all know, this proved a failure, owing to the fact that it immediately increased the intensity of the disease in consumptive patients, manifested by a rapid elevation of temperature.

As a result of this one invariable fact, Prof. Gutman, of the Veterinary Institute of Dorput, Russia, experimented with the lymph upon cattle, and found the high reaction in tubercular animals equally constant; since which time, tuberculin has been used with almost uniform satisfaction in the detection of tuberculosis in cattle.

Tuberculin is the sterilized and filtered liquid in which pure cultures of the "bacillus tuberculosis" have been grown. This germ, like all others, develops, as a function of its life, a chemical poison, or ptomaine, peculiar to itself. It is prepared by growing the tubercle bacillus in a pure culture until highly concentrated and until a large amount of its ptomaine is developed. Glycerine and carbolic acid are then added, and the mixture is filtered through a porcelain plate to remove the germs. The filtered fluid is heated to a sufficiently high temperature to destroy the vitality of any germ which may have passed the filter. It is then evaporated at a low temperature, in a vacuum, until concentrated. The test with cattle is made by injecting the fluid under the skin back of the shoulder by means of a sterilized hypodermic syringe. The syringe, skin, and hair at the point of injection are first carefully disinfected in order that no disease-producing germ may enter the system by this means. The normal temperatures are taken before injection. The presence of tuberculosis in an affected animal is indicated by a rise in temperature, usually beginning ten hours after injection, but occasionally not until as late as from sixteen to eighteen hours. The fever is sometimes accompanied by uneasiness, with rigors, chills, and diarrhoea. Careful observation and trained intelligence is essential to the interpretation of the results of the tuberculin test, since apparent reactions sometimes occur which will mislead the unskilful or careless examiner. The test is too delicate for ordinary hands.

Thanks to the Bureau of Animal Industry at Washington, from whom we have obtained an excellent quality of tuberculin, we have been enabled to make something over one thousand tests, a tabulated list of which we have here. Throughout these tests, we have never made an autopsy, when a positive reaction had been obtained, that the

diagnosis was not confirmed. As a result of this work, we are ready to base our future action upon the results of the tuberculin test.

In order to better accomplish the desired result we have formulated a general order, which I will read to you in closing.

(The general order of Nov. 20 here read will be found printed in the appendix.)

After a highly interesting discussion on tuberculosis and the order of the Commission on the subject, the chairman was obliged to leave and Dr. Osgood was asked to preside.

DR. OSGOOD. There are representatives of the board of health here to-day, — especially I call to mind a representative of the Canadian government, who has charge of the matter of contagious diseases throughout the provinces of Canada, — members of the board of health of some of our Connecticut towns, and also Congressman Walker, of Worcester, whom I will ask to say a few words, after which some of the other gentlemen will address you.

#### ADDRESS OF HON. JOSEPH H. WALKER.

*Mr. Chairman and Gentlemen:* I do not know for what purpose I was called upon. I think I have about as much right to appear here as a farmer as most of you; but I suppose that the Commissioners may want some word said in reference to the approval of the laymen of the Commonwealth, — men who are not inspectors, — men, women, and children who are interested in the results of your work. I have to say, Mr. Chairman, members of the Board of Cattle Commissioners, and all who bear the official responsibility of diseases among cattle, that you may rest assured that any expense that may be caused by your official action, that is demanded in the interest of the public, in a conscientious effort to stamp out this disease among cattle, will be thoroughly approved by the people without any reference to cost. Though it takes one half or three fourths or the whole of the animals out of the Commonwealth, let us clean them out and begin over, and substitute for them something else.

(*A voice.*) Who will pay for them?

WALKER (*continuing*). The State ought to pay for them.

Now the farmers are responsible, to a certain extent, for diseases in their herds, because it is their business to know whether their animals are diseased or not, just as it is my business to know about boots and shoes, whether they are good or not.



The Commonwealth, under any consideration, is bound to pay a considerable amount of losses that come to the farmer because of it, and I believe the people in this Commonwealth will justify and sustain the Legislature in compelling the Commonwealth to pay whatever taxes may be necessary to bear a very large share of loss that comes from this action.

I do not wish to detain you, but I wish to say that I believe, from what I know, that the people of the Commonwealth will bear out this Commission, and say: Go ahead and clean out this disease at any cost. Exterminate tuberculosis, and the results will soon reimburse us for the original outlay.

CHAIRMAN: I see Mr. William R. Sessions, Commissioner of Agriculture, whom we shall be pleased to have say a few words. Gentlemen of the convention, Mr. William R. Sessions.

#### ADDRESS BY WILLIAM R. SESSIONS.

*Mr. Chairman and Gentlemen:* I need not tell you that this is a question in which I am very much interested, because you all know that to be the fact. When I received the invitation or notice of this meeting, — invitation, also, — I had my doubts about the feeling of the community being ripe for such a convention, and came down here expecting to see a comparatively small audience, and I confess I am agreeably disappointed, and the Commission has proved itself nearer right than I supposed it was. Before coming here, I would not have dared to say what Congressman Walker has just said, that the State will back up its Commissioners, but I think I would be warranted in saying so to-day, after seeing the desire of the men to know their duty and power, and their desire to exercise it.

I find here no criticisms or carping about the law, which I expected, and I am satisfied that the Commonwealth is ready for them to go forward, those who know about this tuberculous element, and I am not fearful that the Commonwealth will not back up the Legislature in this matter.

Last winter, when this law was proposed, with fear and trembling I advocated it.

I thought the State ought to pay part, at least, of the original value of the animal slaughtered. I have n't changed my views. In conversation with some examiner I said I hoped it would, that I thought it would be a very great assistance to them, and would make cattle owners helpers and allies of this Commission. All men are selfish. They will conceal and obstruct as much as possible. I

congratulate your Commission upon the plan which they have unfolded to us to-day, and I approve of it. It is a plan which has involved a great deal of study, — one which, from one hearing, I am unable to pick any flaws in. It is quite evident that they are honest in their endeavors to fulfil the law. They have had a great deal of experience in this business and are much better able than we to decide what is the best plan, and they have shown by their conduct to-day that they are ready and anxious that every one interested in the matter should express their views and propose amendments, etc.

I do not wish to further take the time of the meeting, but will say to the Commission, "God speed." I believe you are on the right track.

DR. OSGOOD. I have now the pleasure of introducing to you Prof. D. McEachran, Dean of Montreal College, the most prominent veterinarian in Canada, and Chief Cattle Inspector for that government. Gentlemen of the convention, Prof. McEachran : —

#### ADDRESS BY PROF. D. McEACHRAN.

*Mr. Chairman and Gentlemen :* When I was honored by an invitation by such a representative body as the Board of Cattle Commissioners of the Commonwealth of Massachusetts to be present at their deliberations to-day, I did not expect to have the pleasure of meeting such a large concourse of representative stockmen and inspectors as are here assembled.

Being charged as I am, as Chief Advisor of the Government of Canada, with great responsibilities in dealing with the often difficult problems relating to animal diseases, I naturally embraced this opportunity of learning what this deliberative body proposed to do in dealing with a subject of such vast importance as the main question before you to-day, viz., tuberculosis in cattle, and I assure you that I have not been disappointed, for I have learned from the able papers read by Profs. Lyman and Osgood and the able address of your worthy chairman, Prof. Stockbridge, whose name and fame are so long and favorably associated with the promotion of agriculture and live-stock interests, that you have been fortunate in having a Board not only well qualified to carry on this great work, but who are determined that it will be done and done thoroughly.

We have heard to-day that Massachusetts was the first State in the world to deal effectually with pleuro-pneumonia, a disease that has not only lingered for more than half a century in European countries

and in portions of this country, but has cost millions annually in ineffectual efforts to stamp it out, and more than that, brought ruin to the agriculturists of these countries.

I feel proud that I have been privileged to assist at this meeting, which will be an historical one, for I feel satisfied that a body such as this will carry out with equally satisfactory results the difficult task of stamping out a disease of far more importance and infinitely more destructive than pleuro-pneumonia itself.

To do this they will need your hearty co-operation. I heard a remark in this hall to-day, by a gentleman sitting near me, that "They have bitten off more than they could chew." That is a very expressive remark, but, gentlemen, I do not agree in that sentiment.

It is true that in the carrying out of the necessarily arduous work they will have many difficulties to overcome; but history repeats itself, and a people who led the world in ridding their herds of such an insidious disease as pleuro-pneumonia will not fail to back your Cattle Commissioners in stamping out tuberculosis also.

You have heard to-day many plain facts about tuberculosis. I need only to repeat a few of them. This disease is very contagious; its contagium is peculiarly subtle; an animal coughs, the sputum dries, it is carried by the air, is inhaled, and the bacilli enter the respiratory organs of a healthy animal, and it, in turn, becomes diseased. A diseased bull is introduced to a herd, co-habits with healthy cows, and they become diseased. A healthy calf is given the milk of a tuberculous cow, and it becomes diseased. Healthy cows are placed in barns previously occupied by tuberculous cattle, and they become tuberculous.

It is not only communicable from animal to animal, in these and various other ways, but it is communicable from animals to man in the same manner. Milk is the food which the medical man prescribes for the invalid; the fond mother feeds her darling child on milk, which may be teeming with tuberculous bacilli. Milk forms a portion of the family meal on nearly every occasion, and yet, just think of it, gentlemen! with this disease so prevalent among dairy cows, the consumer is never certain that that milk does not contain the active germs of this incurable death-dealing malady.

Statistics show that consumption is on the increase. You have heard to-day that one death in every eight is due to consumption. Consumption in man is communicable to animals. A consumptive patient is sent to live on a farm. He coughs, expectorates, and the sputum is eaten by poultry or pigs, or dries and is inhaled by cattle, and tuberculosis attacks these animals.

Facts such as these cannot fail to arouse in the minds of an intelli-

gent people a determination to back up these gentlemen who are about to rid the land of such a plague.

From some of the questions asked here to-day by delegates I infer that some of you are under the impression that this is purely a lung disease, and that *cough* is an invariable symptom by which it can be recognized. Such is not the case. It is true that the tubercles often form in the lungs. You may find them from the size of a millet seed to "the size of a hen," as was stated by one of the speakers this morning. They occur with equal frequency in other tissues, especially the glands, both externally and internally about the neck and throat, below the ears, between the jaws, in the udder, the mesenteric glands, thoracic glands, and pleura; in fact, they may be found in any tissue in the body. In advanced cases they are large and numerous, and many, unless closely searched for, may be overlooked. I want to impress this upon you, as I understand many of you are inspectors working under these Commissioners.

You have heard from Prof. Osgood that a test, viz., TUBERCULIN, or Koch's lymph, is now in daily use for determining the presence of tuberculosis. This is an attenuated virus, rendered sterile by heat. The bacilli are killed in the process, but the poison which emanates from them is contained in the liquid.

It has been discovered that this liquid, when injected under the skin, will almost invariably cause a rise in temperature in a tuberculous animal; whereas, it gives no reaction in the case of a healthy animal.

The discovery of this test has made it practicable to deal with this disease in the manner now proposed by your Commissioners.

I have been working on this subject for twenty-seven years, during which time I was aware of its contagious and destructive character; but I was also well aware that no living man could diagnose the disease by mere clinical examination, except in advanced internal cases or well-marked external ones. Therefore, although I had it put on the list of contagious diseases, in the Animal Contagious Diseases Act in 1886, three years in advance of Great Britain or France, till this test was discovered I could not advise the Canadian government to undertake the task of stamping it out, on account of our imperfect means of diagnosing it. Now, however, there is less excuse for any government allowing this plague to exist, not only a menace to public health, but actually a death-dealing plague throughout the land; and I trust that, before long, the Canadian government will follow your common-sense example, while yet this disease exists only to a limited extent, as it does in our country, and while it can be eradicated for a small sum compared with the benefits to be derived

from the expenditure, or what it will assuredly cost if action is longer delayed.

Now, gentlemen, as you are representatives from nearly every part of the Commonwealth, allow me to suggest that you do what you can to help the Commissioners, by telling your neighbors what you have learned here to-day about this disease. I believe that the education of the people on this subject should precede any radical measures for stamping it out, and this Commission will greatly simplify its work by printing in the plainest English the facts concerning this disease, and let every stock owner or breeder — nay, every household — learn by this means the danger of longer tolerating such an insidious plague in their midst.

I was pleased to hear from Prof. Lyman, to-day that pleuropneumonia no longer exists in the United States, and I believe it to be true. It is equally true that it does not exist in Canada; that it never did exist in Canada except when it was imported to the Quebec quarantine in 1886, where it was effectually stamped out.

I repeat, it is true — the opinions of the Imperial Official Veterinarians notwithstanding. Were it not true, I feel convinced that I would soon be contradicted in such a large gathering of inspectors, practising in a State so closely bordering on our frontier.

In conclusion, Mr. Chairman and Commissioners, allow me to thank you for this opportunity of being present, and please accept my congratulations on the praiseworthy action you are taking in this matter, and my sincere good wishes that the work so well begun will be carried to a successful termination.

PROF. OSGOOD. I see that we have with us to-day a representative veterinarian from Connecticut and would introduce Dr. Noah Cressy, of Hartford.

#### ADDRESS OF DR. NOAH CRESSY.

*Mr. Chairman, Members of the Cattle Commission of Massachusetts, and Gentlemen:* If ever I enjoyed a professional Pentecost equal to that of old and rejoiced because of it, it is here to-day. Long ago when I first advocated that tuberculosis was contagious, even the worthy chairman of your Commission, long experienced with it, and in the actual practice of examination, doubted it, as did a majority of the profession,\* etc.

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\* It is to be regretted that, because of Dr. Cressy's speed in delivery, the stenographer is unable to furnish a full report of his remarks, as they were excellent, much to the point, and in view of the doctor's long experience, very instructive.

PROF. OSGOOD. We desire to have the pleasure of listening to a few words from C. A. Dennen, of Pepperell, the nominee of the governor to fill the vacancy made by the resignation from the Board of Commissioners of Prof. Stockbridge. Gentlemen, I have the pleasure of introducing C. A. Dennen.

#### ADDRESS OF MR. C. A. DENNEN.

*Mr. Chairman and Brother Inspectors:* I did not expect to be called on here to-day to speak. I don't know what to say, but I am very much pleased indeed to be able to be present with you and hear the remarks that have been made, and listen to these very able papers. I am also very glad indeed that I have had opportunity to see more or less of this disease, from the fact that from twenty to twenty-five years I butchered, and I have seen it in all its stages for that period of time. As I have listened to the paper read by Prof. Osgood, I could not help thinking how many cases that I have seen and known that have been so thoroughly illustrated by him, and one particular case came to my notice within a day or two. Some three years ago a neighbor of mine in the town of Pepperell said: "I would like to have you come and see my cow. I have got a very nice cow; I bought it at the Lawrence Farm." (You all know the reputation of this farm for breeding cattle.) "She is a nice cow, but she is not very well, and I would like to have you look her over and tell me what you think ails her, and what I can do for her." I looked at her and I told him I should bury her the first thing I did. He asked me, "What is the matter?" And I said, "Consumption." He buried that cow within three or four days. He raised a calf from that cow. When he buried the mother he put the daughter in the mother's place; after a time he came to me again and said *she* was sick, and he would like to have me come and see her. I went, and I said as to her the same that I had said as to her mother: "Bury her." I also advised him to be very careful not to put another in her place before he had thoroughly disinfected it. Not satisfied with my judgment, he went to Surgeon Towles, and he told him practically the same as I had, that the cow had tuberculous. He raised a calf from that cow and put her in the place of the grandmother and mother. Night before last he sent for me and said: "My other cow is sick, and I would like to have you see her." I placed that cow in quarantine.

I sent an order, or copy, into the office, with the remark that the grandmother, mother, and daughter had tuberculous; that two had died and the other was almost dead.

It seems to me that if this is not hereditary (all the profession say it is not), it is hereditary as far as this: that the system has a tendency to consumption from the mother or grandmother, and it crops out.

In these cases, the bacillus was taken probably from the stall where the cows were tied.

Since I have been inspector in Pepperell, we have taken forty-six cattle out of that town and killed them. Out of the forty-six, we made a mistake of one, and found forty-five diseased, and most of them were badly diseased. In the one in which we could not discover tubercles in the lungs or any part of the body, the lungs had adhered to both sides of the chest so that I could not pull them off without tearing them, which was the reason we got the sound that we did. We had taken three cows out of that barn before and killed them.

Out of the forty-six, I do not think there was but one case that was not tuberculous; found two with tubercles on lungs, but in many cases found them all over the body.

Other interesting remarks were made by Dr. Madison Bunker and Dr. Geo. Brigham.

DR. WARD, of Northfield. I wish to make one motion before we adjourn. That this convention of cattle inspectors extend to Drs. Lyman and Osgood a vote of thanks for their able papers and also the gentlemanly manner in which they have answered the numerous questions which have been propounded.

Motion seconded and carried.

The meeting then adjourned for a practical demonstration of the tuberculin test.

F. H. OSGOOD,  
*Acting Chairman.*

Proceedings of the National Live Stock Sanitary Convention, held in Washington City, D. C., on Tuesday, Wednesday, and Thursday, June 19, 20, and 21, 1894.

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#### TUESDAY'S SESSION.

The convention met in the annex of the Agricultural Building in Washington, D. C., at 10 o'clock A. M., Tuesday, June 19, and in the absence of Hon. J. A. Potts, of Missouri, was called to order by A. M. Brownlee, Secretary of the Illinois State Board of Live Stock Commissioners.

On motion and second, Hon. Levi Stockbridge, Chairman of the Massachusetts State Cattle Board, was elected Chairman, and A. M. Brownlee, Secretary.

Members present were enrolled as follows: Dr. E. D. Salmon, Chief of the Bureau of Animal Industry of the United States; Dr. Robert Ward, Chief Veterinary Inspector of Maryland; Frank G. Wrightson, President, and J. E. Beasman, Secretary of the Live Stock Sanitary Board of Maryland; Dr. M. Stalker, State Veterinarian of Iowa; Thomas J. Edge, Secretary of the Pennsylvania Board of Agriculture; Franklin Dye, Secretary of the State Board of Agriculture of New Jersey; Chas. P. Lyman, F. R. C. V. S., Secretary of Massachusetts Board of Cattle Commissioners and Dean of the Veterinary Medical Department of Harvard University; Levi Stockbridge, Chairman of Massachusetts Cattle Board and ex-President Massachusetts Agricultural College; Dr. T. J. Turner, State Veterinarian of Missouri; C. D. Bartlett, Chairman, J. H. Paddock, Commissioner, A. M. Brownlee, Secretary, of the Illinois State Board of Live Stock Commissioners, and Dr. M. R. Trumbower, State Veterinarian of Illinois; H. H. Hinds and J. E. Barringer, of the Live Stock Sanitary Commission of Michigan; George C. Pritchard, State Veterinarian of Kansas, and E. N. Turner, Chairman of the Kansas Live Stock Sanitary Convention.

Letters and telegrams of regret were received from Robert J. Kleberg, Secretary of the Texas State Sanitary Commission; Benj. McInnes, State Veterinarian of South Carolina; Dr. Neil B. Jones, of Ohio, and others.



The President read the call for the convention, which was as follows : —

MEXICO, Mo., June 8, 1894.

*To the Live Stock Sanitary Boards and Commissions of the States of the United States, —*

GENTLEMEN : Responses to a circular sent out some days ago calling a Live Stock Sanitary Convention to meet in Washington City, D. C., on June 19, 20, and 21, are sufficiently numerous to show the widespread interest in said convention, and justifies the belief that the majority of the boards of the United States will be represented. The call is therefore reiterated, and the convention will be held on the above date. The delegates will find at the Arlington Hotel full information as to place of meeting and programme. The convention will be called to order at ten o'clock A. M., on Tuesday, June 19, and officers will be elected. The Honorable Secretary of Agriculture, J. Sterling Morton, has been invited to make the opening address, and Dr. Robert Ward, State Veterinarian of Maryland, will respond.

The following subjects will be taken up in order and discussed : —

*First.* Uniform State laws for the suppression and prevention of the spread of contagious and infectious diseases among domestic animals. Paper by Dr. T. J. Turner, State Veterinarian of Missouri, and discussion.

*Second.* Uniform quarantine line. Discussion led by Mr. White, of Kansas.

*Third.* The tick theory in regard to the communication of Texas fever. Discussion led by Hon. Robert J. Kleberg, Secretary Texas Sanitary Cattle Commission.

*Fourth.* ACTINOMYCOSIS. — Discussion led by Leonard Pearson, B. S. V. M. D., University of Pennsylvania.

*Fifth.* TUBERCULOSIS. — Papers by Dr. J. H. Kellogg, Superintendent Battle Creek (Michigan) Sanitarium, and Dr. M. R. Trumbower, State Veterinarian of Illinois.

*Sixth.* GLANDERS. — Papers by Dr. Robert Ward, State Veterinarian of Maryland, and Dr. Neil B. Jones, of Ohio.

While the convention has been called for three days, the time and all other matters will be left to be settled by the delegates when they meet. As the questions to come before the convention are very important, I hope that all States will be represented.

This call is made in pursuance of authority given me as president of the Cattle Convention held at Kansas City in 1893.

Respectfully,

J. A. POTTS,

*Of the Missouri State Board of Agriculture.*

Dr. Salmon said that the Honorable Secretary of Agriculture, J. Sterling Morton, could not be present, as he was attending a Cabinet meeting.

Dr. Robert Ward, of Maryland, made the opening address. He

said Maryland had received the call for this convention with great satisfaction. They had often wished for such a convention, of State boards, as it would lead to co-operation which would be of great value and would materially reduce the cost of State inspection. He had found that there was great necessity for work in unison. He spoke at length of the work of stamping out pleuro-pneumonia, and explained the great good they received through the hearty co-operation of Dr. Salmon, Chief of the Bureau of Animal Industry, and hoped that the work of this convention would result in such hearty and effective co-operation of the State boards and the United States Bureau as would enable the combined forces to stamp out tuberculosis, glanders, and other dangerous and contagious diseases.

Dr. Turner, of Missonri, moved that a committee of three be appointed by the Chair to consider the question of a permanent national organization, and that said committee make their report to this convention.

The motion prevailed, and the Chair appointed Dr. T. J. Turner, of Missouri, Dr. Chas. P. Lyman, of Massachusetts, and Dr. M. Stalker, of Iowa, as such committee.

Mr. Paddock, of Illinois, moved that the convention proceed with the consideration of the subject of "Uniform State Laws," and the convention so ordered.

The following paper was read by Dr. T. J. Turner, of Missouri: —

#### UNIFORM STATE LAWS FOR THE SUPPRESSION AND PREVENTION OF THE SPREAD OF CONTAGIOUS AND INFECTIOUS DISEASES AMONG DOMESTIC ANIMALS.

*Mr. Chairman and Gentlemen of the Convention:* After the statement of the subject, which is in reality one fit for debate rather than a thesis, the following question propounds itself to each one here assembled: Is such uniformity necessary? It is, peradventure, accepted by this body that, were all the State laws uniform throughout, then but one law regulating these matters would exist, and that the execution of it would be much easier, cheaper, possibly much more efficacious. Yet, however, there are, likely, good and sufficient reasons for the diversity of these laws.

Few State laws are in harmony to the extent of uniformity with those of other States; and justly so, too. They are different from the fact that different people need different laws. Not laws, the intent of which are different, but which in detail differ in order to meet the requirements of its special people. Can we hope for unity or uniformity in detail of sanitary live-stock laws when such divergence is found in all others? All intent on the one paramount idea, the suppression and prevention of the spread of these dread maladies, each at this time must use its own ideas, make its own laws as best fitted to its own people and their interest.

Although we recognize that our desire for complete uniformity is perhaps a thing of the far distant future, let us not despair of attaining the desired goal, but rather strive the harder since its possession seems so difficult.

How are we to accomplish this end? Let us look at the territory the Union covers, from ocean to ocean and from Maine to the Gulf. Within these confines are forty-four States and four Territories. Each and every one of these areas should have laws such as we are at present discussing. How many do you suppose have any such laws; and how many have such an officer as the State Veterinarian? Out of the whole number of States and Territories, judging from responses to a circular letter written Dec. 26, 1893, there are only from twelve to fifteen that have State Veterinarians at all, and only from sixteen to eighteen that have any laws relating to live-stock sanitation. There is but little difference in the general tone of the laws of any of the States I had the good fortune to obtain.

First, then, there should be instilled into the minds of the citizens of these various States the great benefit to be derived not only to its citizens in a financial way, but also its advantages to the general health and welfare.

I would note just here, too, the close connection that exists between sanitary laws for the human family and those for live-stock, which makes this almost one common cause and the veterinarians and M. Ds. brothers in it.

From what source is this education, as it were, to come?

As the veterinarians are scattered east, west, south, and north, so do we find ever-increasing interest in these matters. From them, then, as being competent judges, should the people learn much. Their road will be no smooth one, but if they be men let them struggle on and persevere until success is their reward.

Again, experience in the advent of a dreadful malady among the stock of a State will be a very helpful card to the promoter of these interests. The veterinarian heralds the news far and wide, and ere many moons have passed we have a sanitary live-stock law, made possibly for this immediate purpose. Let that be, but remember that the people now have been awakened and are thinking. The next legislature has met and adjourned and a new and improved law stands in place of the old. Thus we have another State or Territory in line toward the final goal. While in new States and Territories these, or allies, are at work, let those States and Territories that long before entered the list be doing all in their power to further the ends for which they are striving. Each of the States which now has its own laws regulating such matters has in view the control and management of these diseases, as that only concerns its own people.

Let us be more generous (if possible without personal injury), and make laws that, at the same time they aid us, may also be aiding our sister States. States, as men, are very apt to become narrow in their views and jealous of their own interests, whether such are threatened or not, and to take steps that may unnecessarily do great, and possibly irreparable,

injury to some one else. At times also they, as men, are apt to consult their own interests only, and neglect entirely to consider the effect upon others.

To illustrate, this year certain counties in Arkansas were admitted to be safe counties by the Federal Government, and cattle from these areas were allowed *ad libitum* anywhere north or west of the scheduled country. Missouri thought three of these counties likely dangerous and excluded them. Arkansas thought an injustice had been done her, and it may be so; at any rate, those counties are now admitted (information upon inquiry seeming to justify it), and time alone can prove the wisdom of the first or last act.

Again, Kansas has under certain conditions quarantined against Missouri cattle from certain southern counties for no plausible reason on earth. No cattle from Missouri territory have ever, either in the past or present, been capable of producing splenic or Texas fever.

All of her territory has always been north of the Federal quarantine line, so that Kansas's supposed precaution does her no special good, having quarantined against a territory as free from contamination as any within her own confines, and she has done Missouri an injustice before the public. Thus, for supposed or imaginary danger injury is often done.

Again, in all matters possible, it is well, it seems to me, to follow the Federal rules, for by so doing often much is simplified. If in uniformity lies our hope and salvation, the hope of uniformity must be centred in co-operation,—first, if possible, State with Federal Government; second, State with State; next, State Sanitary Live Stock Board, Commissioners, or whatever the power to execute these laws, with the Health Board of the State; and the co-operation of the Live Stock Sanitary Board with the municipal laws of the various cities of the State.

The following general laws might with all propriety be uniform, they being of vital importance to interstate traffic.

There should be a law compelling the examination of each and every animal brought to one State from another for breeding purposes, and a certain standard, also fixed by law, should be required ere the animal is allowed to enter.

If we are able to form uniform laws for this interstate traffic, then a certificate from one State to another will be of great value. Few States require certificates or examinations of such stock, and as a result thereof we have had these apparent idiopathic outbreaks of pleuro-pneumonia, contagiosa, etc.

Bearing in mind that all the dangerous contagious and infectious diseases have been imported to this country, and that the trend of the live-stock traffic is from west to east, does it not seem that by united effort on our part all these maladies might be greatly decreased if not entirely destroyed?

Again, a compulsory disinfection of cars in which all live-stock, for such purposes, has been or is about to be shipped should be had.

The executors of these laws should also be the same in each State, as near as possible, for this may make a vast difference, as, for example, if a State Board of Health has this power the members are likely to pay more

especial attention to that part of live-stock sanitary law which affects the human family more directly.

If I were to suggest the, to me, ideal mode of regulating this matter, the live-stock sanitary conditions should be under the management of the State Board of Agriculture, or some department of it, who should have the power, and be compelled under the law, to employ a competent veterinarian, to be chosen according to his professional merits, and not, as it has been my misfortune to see, an applicant with almost the sole recommendation that he was a staunch and hard-working Democrat or Republican. This veterinarian should, by virtue of his position, be a member of the State Board of Health.

Having secured this, proper laws should be made governing this officer, and his duties assigned. He, being chosen according to his merits, should have the power, subject to the approval of the Board, to appoint deputies and assistants to aid him in carrying out his work. Then the law governing the State Veterinarian and the State Board of Health should be so couched that where the power of the one ceases the other shall begin; and this might also apply to the municipal meat and dairy inspection laws, for really the inspection of the animal alive might and would aid materially the inspection of milk and other food products, in so far as any danger from the contraction of disease from its consumption is concerned. If each State would do this it would scarcely matter as to the detail work; for though it may suit in Illinois for the veterinarian to appraise, condemn, and destroy glandered animals, in other States the value might best be fixed by law, and so on in reference to other diseases and their managements.

Having touched only slightly on a few facts and brought this subject before your body, I now leave the discussion of the subject in your hands, and would suggest that each State here represented may give to the others some exceedingly interesting facts, and by this interchange of opinion we may be able to advance our individual cause, and do a public good.

Dr. Lyman, of Massachusetts, said he was exceedingly interested in this subject. It was most important. He had no doubt but that all desirable uniformity could be accomplished. Some States had no laws; some had very imperfect ones. All could be improved. Uniformity in the detail of local work was not the question. Laws could be passed in all States which in effect would be the same. Massachusetts had an early incentive to action. Her Cattle Commission was created to stamp out pleuro-pneumonia. Laws were then passed which were fundamental. Others had been added. The Legislature this year had undertaken the codification of all of these laws, and had passed a bill, which is now being engrossed. The bill creates a commission of five members, and empowers them to deal with tuberculosis and kill cattle diseased with it. Each town is to appoint a local inspector, amenable to the Board of Health and to the Cattle Commis-

sion. This will make a force of some four hundred men, who are to be organized and put to work. The doctor then read a brief summary of the purposes to be accomplished and the methods adopted in the act now about to be enacted by the Legislature of Massachusetts of the year 1894, entitled "An Act to codify, consolidate, and extend the Laws relating to Contagious Diseases among Domestic Animals."

Dr. Turner asked if estimate had been made of the expense of this system.

Dr. Lyman answered that very careful estimates had been made. It seemed hard to take cattle without paying for them. The legislature paid one half of the value of the animal, in cases of tuberculosis, and this value is simply the value of the animal as a milk or food producer, and not a fancy stock value. So far, about four per cent of the animals examined by the inspectors had been found to be affected with tuberculosis. No indemnity is paid in Massachusetts for other diseases.

Dr. M. Stalker asked if animals affected with Texas fever would be destroyed and paid for by Massachusetts.

Dr. Lyman said that they would not be paid for under the present law.

Thomas J. Edge, of Pennsylvania, said the secretary of the State Board of Agriculture of his State has all the power in the premises. They only pay for glandered horses destroyed by the State. The highest price paid was twenty dollars. They have been working in tuberculosis. Out of a herd of one hundred and thirty-four cattle, one hundred and five were condemned. He considered money paid for diseased animals well spent. If the State does not pay, the State will have to do all the work of hunting out diseased animals. If the State pays, the owners will report such cases to the proper authorities. It costs less to pay for them than to hunt them up. A nominal price should be paid.

Dr. M. Stalker said they were more concerned about results than uniform State laws. Iowa has not an independent Cattle Commission. He had been the State Veterinarian for ten years. The theory of the Iowa legislature was that no value should be attached to a diseased animal, but permits a nominal price to be paid. The theory is that a man whose horse dies of colic should not be taxed to pay for another man's horse who is killed because of the glanders. Animals are placed in quarantine and held until owner agrees to let animal be killed without compensation. All exposed as well as all diseased animals should be destroyed. In Iowa, no work is being done on tuberculosis.

Being asked if work in Illinois on tuberculosis or other contagious diseases would not be much less expensive and more effective if all

adjoining States were doing the same work, the doctor said that it would, but that State Boards could work independent of the action in other States.

Dr. Edge, of Pennsylvania, said in his State the corporations paid the tax, and the owners of animals did not object to payment for those destroyed.

Dr. Lyman moved that the convention take up the subject of tuberculosis to-morrow morning, and the motion was agreed to.

On motion, the convention adjourned until 2 o'clock P. M.

At 2 o'clock P. M., the convention was called to order by the President, and Dr. Robert Ward, Chief Inspector of Maryland, delivered an address on glanders, using a set of diagrams prepared by him for the Agricultural College of his State. He said that glanders was the most dangerous disease known. It had been known for many generations. Great outbreaks of glanders were to be found where all great armies had congregated. The cavalry used by the armies of Constantine the Great in the 14th century, and at the siege of Naples, was scourged with this disease. At the conclusion of the Afghanistan war, sixty-three thousand horses were left dying on the field, most of them affected with glanders. In the Crimean war, glanders were rife. During the War of the Rebellion, many thousand horses died of this disease and left us a legacy of glanders. The disease is due to the *bacillus mallei*. It is a mistake to suppose that glanders can be developed *de novo*. The statement that under certain conditions glanders can develop without infection is not true. There must be a germ. This disease is peculiarly dangerous from the fact that man is subject to it, and can easily become infected with the incurable disorder by contact with a diseased animal. Glanders and farcy are identical. If all cases are carefully investigated it will be found that they arise from infection. When the glanders virus is exposed to the sun or heat, it is destroyed. In damp, dark stables it will hold its vitality for many years. Underground stables are hard to disinfect. The doctor gave a very exhaustive description of the disease, illustrated by diagrams, and spoke of the great value of mallein in diagnosing the disease. He cited several cases which had come under his personal observation of men who had contracted this disease by handling affected animals. He said last year in Baltimore sixty horses had been destroyed in one stable. They now took radical action and destroyed all cases.

Dr. Trumbower spoke of a case on record where a mare had been stabled with a mule. The mule was found to be in an advance stage of glanders and was killed. The mare was hunted up. Showed no trace of glanders. She was destroyed. Was the action justifiable?

Dr. Ward said it was. The mare was dangerous.

Dr. Trumbower spoke of the State law in Illinois. Since 1876, glanders in his State had decreased about one hundred per cent. The State pays for animals killed. The average price is thirty dollars. As a result of this payment, there are more cases reported to the State Veterinarian.

President Wrightson, of Maryland, spoke in regard to the policy pursued in his State of paying for glandered animals. He said it worked well. They had no trouble. The State Veterinarian placed the valuation. The average price was ten dollars. It was a good thing to pay for them. The assistant State Veterinarians were encouraged to report all cases by allowing them veterinarian fees on all cases reported until case was developed or disposed of. An officer was sent in all cases to see that the premises were thoroughly disinfected.

Dr. Lyman said he had been greatly interested in the discussion. Dr. Ward had been so thorough in his lecture, and had taken so much pains to bring charts, and so completely explain the subject that he felt very grateful to him. He was much interested in the described marks of this disease in the nostrils. Was cicatrix there a sign of glanders? He had examined a large number of railroad horses. Their nostrils showed cicatrices of all sizes and shapes. Some crescent, some stellar, others large scars with straight line running out. Examined another lot of horses that had no glanders among them. Found the same scars. He thought it was better to pay for the horses; but some objected, and Massachusetts had given up paying for glandered horses and now pays only for killing and burying.

Dr. Ward said that in Maryland, if a man purchased a horse and the horse developed the glanders, the purchaser could recover from the seller if it was demonstrated that the horse must have had the glanders when sold.

Prof. Stockbridge said in Massachusetts the case is always against the buyer, and he cannot recover unless he can prove that the seller knew that the horse had glanders.

On motion and second, a vote of thanks was given to Dr. Ward for his able lecture.

On motion, convention adjourned to meet at 10 o'clock A. M., on Wednesday morning.



## WEDNESDAY'S SESSION.

The convention was called to order on Wednesday at 10 A. M., by President Stockbridge.

The committee made report on permanent organization, which after amendment was adopted as follows:—

Your committee appointed on permanent organization would respectfully report as follows:—

We recommend the formation of a National Live Stock Sanitary Association, to be composed of a representative of the Bureau of Animal Industry of the United States, members of the different State Live Stock Sanitary Boards and Commissions, their secretaries, the State Veterinarians, and other State officials having control of the matter of diseases of live-stock.

The officers of the Association shall be a President, Vice-President, and Secretary, who shall be elected by the Association, and who shall serve one year, or until their successors are duly elected and qualified.

The present convention shall proceed to perfect said organization and elect officers for the ensuing term.

A committee of five shall be appointed to draft a constitution and by-laws, and said committee shall report at the next meeting of this Association.

That said Association shall meet annually.

That a committee of one be appointed on railroad and hotel accommodations.

That the time and place of the next meeting be determined by the present convention. That the President and Secretary elected at this meeting shall prepare a programme for the next regular meeting.

T. J. TURNER,  
CHAS. P. LYMAN,  
M. STALKER,  
*Committee.*

On motion of Dr. Lyman, the question of organization was laid on the table, temporarily, and the subject of tuberculosis taken up.

Dr. Trumbower, of Illinois, read the following paper:—

## TUBERCULOSIS.

RELATION OF THE DISEASE IN THE MILK AND FLESH OF ANIMALS  
TO THE SAME MALADY IN HUMAN BEINGS.

*By J. H. KELLOGG, M. D., of the Battle Creek (Mich.) Sanitarium.*

Since the discovery, a dozen years ago, of the bacillus tuberculosis by Koch, and the demonstration of the identity of tuberculosis in man and lower animals, particularly the classes of herbivorous animals which

are largely used as food in all civilized countries, a growing interest has been manifested in the question of milk and meat supplies, especially in the larger centres of population. This interest has given rise, particularly in France and England, to the establishment of an inspection service, which, notwithstanding the superficial character of the methods of inspection employed, has revealed many startling facts respecting the prevalence of tuberculosis among milk cows and beef cattle. Special investigations which have been made in this country from time to time have recognized similar facts, so that at the present time there is little or no question concerning the quite general prevalence of tuberculosis among animals the flesh of which is used for food, or which are employed for milking purposes. Numerous investigations have shown that the products of the dairy are in some sections to a most astonishing extent infected with the microbe which is responsible for the loss of more human lives than any other, not excluding the organisms which give rise to those dreaded maladies, small-pox and yellow fever.

The increasing prevalence of tuberculosis in human beings, and the fact that the proportion of deaths from this disease seems to vary in direct ratio with the density of population, increasing at a given point with the age of the community, are subjects which have received much attention from sanitarians, especially within the last decade.

According to Dr. Lagneau, the statistics of 662 cities in France show that the closer people are packed together in cities, the more frequent is this disease. This fact is clearly presented in the following table, which shows the number of persons who annually die from tubercular phthisis to every one thousand inhabitants in cities of different populations:—

Ninety-five cities with less than 5,000 inhabitants, 1.81.

Three hundred and thirty-two cities with between 5,000 and 10,000 inhabitants, 2.16.

One hundred and twenty-seven cities with between 10,000 and 20,000 inhabitants, 2.71.

Fifty cities with between 20,000 and 30,000 inhabitants, 2.88.

Forty-six cities with between 30,000 and 100,000 inhabitants, 3.05.

Eleven cities with between 100,000 and 430,000 inhabitants, 3.63.

Paris, with 2,424,703 inhabitants, 4.90.

The fact that in older populations, like those of New England and England, the proportion of deaths from consumption to deaths from all causes rises as high as twenty or thirty per cent, while in the newer communities of the West the proportion falls to eight or ten per cent, is an evidence that conditions exist in intimate connection with life in a civilized community which favor the development of this dread disease. The revelations of the *post-mortem* rooms connected with metropolitan hospitals in this and other countries have shown that sixty per cent of hospital patients who die have suffered at some time in their lives from infection by the bacillus tuberculosis, as evidenced by the characteristic lesions which have been left behind. The great majority have, of course, recovered from the disease,—thanks to the favorable conditions and the natural recuperative powers of the body,—but this fact is nevertheless evidence that infection of the human race in civilized communities with

the bacillus tuberculosis has come to be at the present time exceedingly common. Indeed, it may be said that such infection threatens to become universal.

It is an inevitable conclusion, from these facts, that the causes of tubercular infection, whatever they may be, must be wide-spread and intimately connected with the conditions of civilized life. That tuberculosis is an infectious malady is a question which we shall not undertake to discuss, as the purpose of this paper is only to bring before this convention this highly important question for the purpose of inviting an exchange of views and discussion of the possible relations which exist between this malady and the use of cow's milk and the flesh of animals.

The reports of some recent observers have seemed to lull into a sense of security those who had previously been aroused to a sense of the danger referred to. For instance, Perroncito, an Italian observer, fed eighteen young pigs for a period of four months on the flesh of tuberculous cows, but found on killing the animals no tuberculous lesions. His inoculation experiments practised upon guinea-pigs, rabbits, and oxen with muscle juice obtained from tuberculous pigs were also negative. These experiments have been seized upon as proof that there is little or no danger of contracting tuberculosis from eating the flesh of tuberculous animals. The experiments, however, do not agree with those of other equally competent observers, and, in fact, are upon their face rather calculated to give rise to suspicion, since they seem to prove too much. The evidence afforded by these experiments would be that tuberculosis is not capable of being communicated either by feeding or by inoculation, whereas laboratory experiments have shown, in many hundreds of instances, that the disease is highly infectious in character, and may be communicated by inoculation with the utmost certainty.

That consumption is in some way connected with the cow is thus very ably argued by Dr. F. R. Brush, who calls the cow "the wet nurse of consumption": —

"Scrofulous females in the human race usually secrete an abundance of milk, because in scrofula there is an unusual tendency to glandular enlargement and activity. As the mammary is the highest type of glandular structure, it is stimulated to increased action. A scrofulous cow is usually the largest milker, and the closest kind of consanguinity has been practised by cattle breeders, with the object of producing a scrofulous animal, not because she is scrofulous, but because the particular form she represents are the largest yielders of milk. We find, too, that consanguineous breeding has been alleged as one of the causes of tuberculosis in the human race, where it can never be conducted with so close and intimate blood relations as in the dairy animals.

"The absence of phthisis in high, dry, mountainous regions has been accounted for by reason of the altitude and absence of moisture in the atmosphere; but here occurs a somewhat curious fact, namely, that the cow does not thrive in the high, dry, mountainous districts, but in the low, swampy, moist region where the succulent and moist grasses grow, is the place where the cow flourishes, and it is in these regions also that tuberculosis abounds in both bovine and human subjects."

That tuberculosis may be communicated through the milk of tuberculous animals, at least under certain circumstances, is strongly suggested if not absolutely proven by the disproportionate frequency with which enteric consumption occurs in young children. A case recently reported in medical journals illustrates very clearly the possibility of infection by tuberculosis through the alimentary canal. Four infants were cared for by a tuberculous nurse, who fed the little ones with a spoon and was in the habit of tasting the milk herself to test its temperature before each feeding. All four of these children suffered and died from enteric consumption, — a very clear case of infection.

In a recent paper read before the New York Veterinary Medical Society, Jan. 9, 1894, published in the Journal of Comparative Medicine, Dr. James Law, of the Cornell University, states as follows: "In the case of calves sucking phthisical cows, they have done badly and proved unthrifty though they took the whole of the milk furnished by their respective nurses, and they have thriven better when weaned and put upon solid food alone. I have followed some such calves until they grew up and were slaughtered, and have made *post-mortem* examinations and found them bearing old calcified tubercles, pointing back to the time when they sucked the infected and poisonous milk."

Much other important evidence might be given upon this point. We will take time only to state briefly a few facts. It has been clearly established that the tubercle bacilli are very liable to be distributed throughout the body by the blood vessels, and that general infection is most likely to occur from the lungs.

Steinheil experimented with the flesh of human beings who had died from tuberculosis, using the Psoas muscle. Nine bodies were examined. Injection was made in each case into two guinea-pigs. In one case both guinea-pigs died of sepsis. In each of the other cases the experiment succeeded, fifteen of the sixteen guinea-pigs developing tuberculosis as the result of the inoculation.

Ernst has shown in a most convincing manner that the milk of cows whose udders are not affected by tuberculosis may contain the microbes of tuberculosis, and that these microbes are present and active in the milk of a large proportion of cows affected with tuberculosis, although they may have no lesion of the udder which can be discovered.

Hirschberger has proven that the milk of tuberculous cows is infected in at least fifty-five per cent of the cases.

Bollinger showed that a pure culture of tubercle bacilli gives positive results in inoculation experiments in a dilution of 1-400,000, thus showing that milk may be infectious when the bacilli are so scanty as to be undiscoverable with the microscope without an extremely exhaustive examination. This shows that inoculation is really the only method of determining the infectious or non-infectious character of the milk.

Hirschberger made inoculation experiments on guinea-pigs with samples of milk obtained from twenty tuberculous cows. He obtained positive results in eighty per cent of his experiments in cases in which the disease was far advanced, and in thirty-five per cent in cases in which the tuberculous process was confined to the lungs. The milk was

found to be more infectious at certain times than at other times, the increased infectiousness being due to the presence in the milk of spores which had been set free from some focus of tuberculous disease and absorbed by the blood, and thus carried by the blood to the mammary gland and secreted with the milk. *A most painstaking microscopical examination made of the milk, even in the successful cases, failed to reveal the presence of the tubercle bacilli, except in a single instance, showing the unreliability of this mode of examination.*

The following case is cited by Hirschberger as a very convincing illustration of the infectious character of milk from tuberculous animals: "The owner of a very valuable herd of cattle," says the author, "finding that a large proportion of them were tuberculous, — so large a proportion, indeed, as strongly to suggest infection by association in the sheds, — withdrew his milk from the market and used it, unfortunately, without boiling, for fattening his pigs, of which he has a large number, and on which he prides himself not less than on his cows. The result has been that the pigs have, almost without exception, been affected with the disease to an extent that has necessitated the slaughter of the whole stock. Another point of practical interest is that he has not been able to discover nodules or other indications of localized tubercles in the cows' udders, — a condition still held by some to be necessary to render the milk capable of transmitting the disease."

But we will not dwell longer upon this point, and we think it a mistake to base this whole matter upon the possibility or the non-possibility of the transmission of tuberculosis from animal to man through the use of the flesh or the milk of the infected animals. It is well enough known that the thorough cooking of meat and the sterilization by heat of milk will easily destroy the tuberculous microbes, although the same cannot be said of butter and cheese, two of the most largely used products in the dairy.

An important fact which seems to have been overlooked until recently is that to which Prof. Law has called attention in the paper above referred to. Since Prof. Koch's famous experiments with tuberculin, which created so profound a sensation in the medical world a few years ago, it has been well known to physicians that the substance known as tuberculin, the toxic product of the tubercle bacillus, is capable of producing most profound effects when introduced into the system of a human being or an animal in the slightest degree affected by tuberculosis. It is this toxine which gives rise to the febrile action in tuberculosis. In a tuberculous animal, tuberculin is being constantly produced in quantities exactly proportionate to the number of bacilli actively present. The rapid elimination of the poison through the kidneys and other excretory organs saves the patient from profound toxic effects, although the steady wasting of the tissues which has given rise to the significant name of "consumption," the rise of temperature, the coliquative sweats and diarrhoea are all evidences of continued toxæmia. When, however, the amount of this extremely powerful poison which is constantly present in the system, and to which the body accommodates itself to a certain extent, is increased by the hypodermic injection of even a small quantity, the tolerance of the system which had been gradually acquired is over-

borne, and the toxic effect is manifested in what is termed a reaction. These effects can be easily watched, if the tubercular lesion is superficial, as in lupus, and are manifested in a marked change in color and swelling up, and finally in death and sloughing of the affected parts. If the affected tissues happen to be upon the surface of the body, or if in the lung located close to a large air tube, suppuration of the diseased tissues and a complete clearing away by sloughing may occur, and all of the infecting microbes may be carried away with the sloughing mass. Thus recovery may result. But if the tubercle foci are not thus favorably located, but instead are located in the depths of the tissues, in the centre of some dense organ, then the effect of the tuberculin may simply be to break down the wall of resistance which nature has thrown up around the tubercular mass, and thus set free the myriads of active microbes which had previously been restricted to a small area, and so set up a general infection of the whole body, converting a local and comparatively harmless lesion into a general infection and hopeless disease. It was the possibility of such results as these which led to the abandonment of the use of the tuberculin in the treatment of consumption by the great number of enthusiastic physicians who, like myself, seized eagerly upon this much praised panacea for the most destructive of all human maladies.

From the above briefly stated facts, it is apparent that the evil results which follow tuberculous infection are not chiefly due to the bacillus itself, but to the toxic products produced by it.

Now, the important fact to which Law has called attention is this, namely, that even though the milk or the flesh of a tuberculous animal may be proved to be free from tubercle bacilli, and hence not capable of giving rise to tubercular infection, or if the infected flesh or milk shall have been sterilized so that it no longer contains living bacilli, still these animal products are, nevertheless, capable of producing most potent mischief through the toxic products of the bacilli which they contain.

In the blood and lymph of every animal suffering from tuberculosis there must be circulating a variable amount of the extremely toxic substance called tuberculin. The milk, as well as the juices of the flesh, of such an animal must always contain a certain proportion of this poison. It is thus apparent that whoever makes use of the flesh or milk of such an animal is thereby introducing into his system more or less of this extremely active and dangerous poison. That the effects of poisoning through this source are not everywhere recognized is no evidence that such effects are not produced, as Prof. Law very well says: "It is the scrutiny and not the facts that is wanting." We have not been looking for facts from this source, and so have not seen them. But that effects must be produced there seems to be little, if any, room to doubt. Prof. Law says, "In my experience with tuberculous cows, cases have come to my knowledge in which invalids drinking the milk of such animals have suffered very obviously, and have improved after such milk has been withheld." The same fact has been noted by Prof. Law in relation to calves, as stated in the quotation which we have previously made from this eminent authority.

Dr. A. N. Bell, editor of the "Sanitarian," a number of years ago undertook a research in relation to the influence of the milk of tuberculous cows upon infants. He found that a great number of infants supplied with milk from a certain dairy were sickly, puny, and in every way unthrifty. Investigation showed that a large number of the cows in this dairy were tuberculous. This observation agrees entirely with that made by Prof. Law. I have made no personal observation of this sort, but a laboratory observation which I made a year ago seems to have sufficient bearing upon this question to be worth relating. In the course of a series of experiments for the purpose of studying, by the method of Bouchard, the relation of the toxicity of urine to various maladies, I made use of the urine furnished by a consumptive patient. The experiment consisted in the injection of carefully filtered and neutralized urine into one of the veins of the ear of a rabbit which had previously been carefully weighed, its temperature taken, etc. A careful note was taken of the amount of urine required to produce death, and of all the symptoms. One of the most pronounced symptoms was found to be a notable rise of temperature—the temperature of the rabbit increased from three degrees to five degrees F. within five minutes from the time the injection was begun. The temperature was taken per rectum both before and after the intravenous injection, and the greatest care was taken to secure the highest degree of accuracy possible.

The observation was not anomalous, as similar facts have been observed in the injection of the urine of patients suffering from typhoid fever and other febrile maladies.

The fever of a consumptive is due to the presence in the circulation of tuberculin. The fever in the rabbit was due to the presence in the circulation of tuberculin, which had been exerted by the consumptive through his kidneys. It will be admitted that the milk of a tuberculous cow must contain a much smaller proportion of tuberculin than does the urine of the same animal; nevertheless, since the fluid portion of the milk is made up from the plasma of the animal's blood, it is evident that it must contain at least as large a proportion of this extremely soluble and poisonous product as is found in the animal's blood, perhaps even a larger quantity, the readiness with which toxic substances of various sorts are excreted by the mammary gland being too common an observation to require more than mention.

This matter is certainly one of the most profound importance. Tuberculin is not destroyed by sterilization nor by any culinary process. If present in the animal when alive, it will certainly be present in its flesh and milk, and those who make use of these infectious substances as food must run an enormous risk of injury. From the results of the *post-mortem* study, to which I have already referred, and by which we have learned that in large cities, at least, about one half the poor population are more or less affected by tuberculosis at some time in their lives, it is evident that an equal number of those who make use of the flesh or milk of tuberculous animals are likely to suffer the greatest injury thereby and through the intensification of the tubercular process or the diffusion of the circumscribed disease.

*Since sterilization affords nothing in the way of protection, it is evident that inspection is the only precaution to which any value can be attached, and this inspection must be thorough-going; it must include not only an ocular inspection of animals, but the injection of tuberculin.*

So thoroughly impressed was I with the importance of this method that, after reading Prof. Law's paper, I immediately proceeded to secure a careful investigation of each one of the one hundred and twelve animals which furnish milk for the hospital and sanitarium of which I have charge. The astonishing thing to me is that I should so long have remained apathetic to a question of so great importance. It has, indeed, many times occurred to me that the milk of tuberculous animals must contain more or less tuberculin, but I had never given the matter sufficient thought to become impressed with its importance. Prof. Law has certainly become a public benefactor in presenting this subject so forcibly and lucidly, and it is to be hoped that live-stock commissioners and veterinarians everywhere will recognize the importance of this phase of the question which has heretofore been utterly neglected.

There is still another feature of the question to which it seems to me sufficient importance has not been attached, namely, the infection of human beings with tuberculosis by contact with tubercular animals aside from the use of their flesh or milk as food. That tuberculosis is usually contracted by the reception of germs into the air passages is a point upon which there will probably be no controversy. The reception of the microbes in the form of dust, by respiration, is unquestionably the most frequent form of contagion. A case which once came under my observation may be worthy of mention, although it seems hardly necessary to add to the vast amount of positive evidence which has accumulated within the last ten years. On inquiring the history of the case of a lady suffering from tuberculosis, who came under my care some five years ago, I was informed that her husband had died of the disease some two years previous. For the last few months he was confined to his bed, and expectorated enormous quantities. The family resided upon a Nebraska farm, and were entirely ignorant of the nature of the disease, not being instructed by their physician. The housewife being busy with her household duties, and burdened with the care of several small children in addition to that of her invalid husband, often neglected to wash the cloths upon which he expectorated. She simply dried them and rubbed them up in her hands to restore pliability, thus reducing the infectious matter to powdered form and diffusing it through the atmosphere of the room in the most effective manner possible. She naturally contracted the disease herself, and when seen by me was in the very last stages of the disease and died a few weeks later.

The "British Medical Journal" recently reported the following case, which indicates the tenacity of life in the bacillus of tuberculosis under ordinary conditions:—

"A family of nine inhabited a house occupied ten years previously by two tuberculous patients. A short time after, although the whole family had been in splendid health, three among them showed symptoms of tuberculosis. They used the same bedroom as the former tenants.



Dr. Ducor had pieces of wall paper examined, and dust from the ceiling and walls was also examined. In both cases the tubercle bacillus was found. The former occupants had been uncleanly in their habits; the sputa had dried on the walls, and the bacillus, as M. Vignal has shown, retained its vitality, and was not destroyed by infection."

A recent number of the "Journal des Connaissances Medicales" reports some cases of tuberculosis which were contracted by the new occupants of an apartment contaminated by expectorated matters of a tuberculous patient who had died there two years before.

Sawisky, who has investigated the length of time that dried sputum retains these infectious properties reports that virulence was retained for two and one half months. He found this to be true even when the sputa was exposed to the sunlight, the destructive effect of sunlight upon microbes, which is well known, being only observed in the bacillus tuberculosis when the sputum was spread out in very thin layers.

Flick showed by a map of the city of Philadelphia which located every house in the fifth ward in which tuberculosis had occurred within the last twenty-five years, that the disease chiefly prevailed in a series of infected houses which constituted less than one third of all the houses in the ward but furnished more than half the deaths. It was also observed that a large percentage of all the cases of mesenteric tuberculosis in children occurred in these houses.

Another fact in addition to those which have been cited, showing the danger connected within infected apartments, is the extreme liability to disease of nurses who care for consumptive patients. Cornet showed from the statistics of eighty-seven thousand nurses, that sixty-three out of every one hundred of them died of tuberculosis, the proportion of deaths from tuberculosis up to fifty years being seventy-three per cent. Is it not reasonable to suppose that the dairyman who cares for a cow suffering from tuberculosis is at least equally as liable to contract the disease from the cow?

*A point of importance to which we wish to call special attention is the fact that the sputum of tuberculous cattle and the apartments occupied by such cattle are as dangerous a source of infection, and more so, than those occupied by human beings.*

Dr. Bell noted in his observations, previously referred to, that healthy cattle which were placed in stalls which had previously been occupied by tuberculous animals soon became infected with the same disease. Doubtless the source of infection among animals is the same as that which prevails most frequently among human beings, namely, the inhalation of the expectorated matters of the infected animal reduced to powder and floating in the air as dust.

The extent to which tuberculosis prevails among cows and other domestic animals is a subject concerning which we are at present considerably in the dark, since no sufficient thorough-going investigation has been made to give us definite and accurate information. The superficial examinations which are made in connection with slaughter houses and packing establishments have shown a percentage of infected animals as high as two or three per cent.

Jorissenne, who claims for the veterinary surgeons of Belgium the honor of first calling attention to the danger in the use of the milk of tuberculous cows, states that out of every hundred cows four are tuberculous.

It is evident that safety from this source of danger to human life can be found only in a thorough inspection, not only of all cows and cattle furnishing food for human consumption, but of all domestic animals which are subject to this disease. *The astonishing thing is that there should be so little interest in relation to this question.* Tuberculosis is a disease much more rapidly fatal in its effects, much more actively contagious, than the much dreaded leprosy of India and the South Sea Islands, and is almost equally fatal when it has obtained a foothold in the human system.

Another interesting fact is found in the pathological resemblance of the two specific microbes characteristic of these diseases. The appearance of the two germs is almost identical. Indeed, their resemblance is so close that a bacteriologist of some note has recently come forward with the assertion that they are absolutely identical — in other words, that the disease known as consumption, or tuberculosis, is only another form of the disease commonly known as leprosy. Certain it is, consumption is a disease much more to be dreaded than leprosy. A malady which destroys more than one sixth of all who die in this country must have some cause which is very general, very potent, and withal very subtle. It is not to be wondered at that there has been much discussion with reference to the nature of this cause. *If it had been very easily discernable, it would long ago have been fully recognized and would have been suppressed.*

It is the firm belief of the writer, however, that the wonderful development in bacteriology and physiological chemistry which the last decade has witnessed has brought to us a solution of this question, and that it only remains for sanitarians to grapple with it resolutely and to urge upon national, State, and municipal authorities everywhere the duty of undertaking a thorough-going and unrelenting crusade against a disease which is annually responsible for more deaths than war, pestilence, and famine combined — a disease which has been aptly denominated “The Great White Plague,” and which is in the light of modern researches as proper a subject for public health measures, restriction, quarantine, and isolation, as small-pox, yellow fever, or cholera.

The Boards of Health of several States have considered the matter of sufficient importance to send out, in great numbers, pamphlets warning the public with reference to the necessity of destroying the sputum of consumptives and carefully disinfecting the premises which have been occupied by them. Similar steps have been taken in England. The health officer of the city of Manchester, England, advertises himself as ready to disinfect, free of expense to the owner, apartments which have been occupied by consumptives.

More than two years ago the government of Prussia took cognizance of the importance of this question, and issued an admirable publication, including a series of rules relating to the prevention of this disease.

Tubercular midwives were forbidden to practice their profession. Town corporations were recommended to provide disinfecting apparatus for the disinfection of infected houses and clothing. It is certainly high time that attention should be given to two of the most important causes of this disease—the use of infected flesh and milk and the contact of human beings with infected animals. Consumption should be classed with other contagious diseases, and treated in a manner consistent with known facts relating to its contagiousness. State and municipal authorities should require a careful inspection of the meat and milk supplies of all public institutions.

I considered it my duty to make an investigation of this sort in relation to the milk supply of the institution of which I have charge. The investigation was made under the supervision of the State Veterinarian of Michigan, who employed the tuberculin furnished by the Department of Agriculture in Washington, in accordance with the rules laid down by the Department for such investigations. Although not a single case of tuberculosis was found among the one hundred and twelve cows examined, I shall continue the application of the test, and hereafter will admit to the establishment no milk which is not furnished by animals which have been subjected to the tuberculin test. The fact that occasionally instances are found in which large herds of cattle are entirely free from tuberculosis, renders all the more important a thorough investigation of this matter, as it emphasizes the contagious character of the malady *and the possibility of the complete eradication of the disease.*

Co-operation on the part of national, State, and municipal governments in making investigations of this sort obligatory, and furnishing facilities for such investigations, would, I believe, result in the saving of many thousands of lives annually, and might within a few years almost wholly eradicate a very important and rapidly increasing cause of tuberculosis in human beings.

Dr. Salmon said it was not necessary to say that tuberculosis was a harmful disease. This was so fully accepted that it was no longer a question. It was unquestionably contagious. It is disputed that birds have the same tuberculosis as warm-blooded animals have. Such facts are yet to be proven by experiments by competent persons. The question of the effect of the milk and flesh of tuberculous animals on the consumers is a very grave one. There is tuberculin in such food, but whether there is enough to affect the consumer is yet to be determined. *It is evident that tuberculin taken into the stomach will not produce the same effect as if it is injected into the blood.* Such products are decomposed in the stomach. The conclusions are at present premature, and ought not to be accepted until more fully demonstrated. There is danger, of course. We do not know how much depends on cooking. Meat and milk of tuberculous animals does contain tuberculin. At present we do not know the exact danger. Live-stock Boards must take cognizance of such diseases. The situation in regard to tuberculosis is that we do not know how prevalent it is. State laws should be uniform, and by general inspection we should determine the extent of the disease. We do not know what per cent of the cattle is affected. It was supposed that three

or four per cent of the cattle about Washington were affected. This must be inaccurate. We now know better. Out of one herd of one hundred head, eighty were affected. *Physical examination cannot be depended upon. But a true test can be made by use of tuberculin. We must cut loose from old methods and take tuberculin. What is needed is a tuberculin test of all animals within a certain district, followed by post-mortem examinations.* We must first determine the extent of the infection, and then proceed by co-operation between the different organizations. Dairy cows are mainly affected. The test is expensive; two days are required to fully determine. What shall be done with the milk during the test? There will be tuberculin in the milk, and if the animals are tuberculous, fever will result. Experiments show that the milk is seriously affected while the test is being made. Milk should not be used. At least one milking will be destroyed. When the test is made what shall we do? Eighty per cent of the affected will re-act, but the test is not infallible. The inspector is embarrassed by this. Another thing, animals may react, and on *post-mortem* show no lesions. Tuberculin is a wonderfully active agent. The worst feature is that some animals do not react, and still are tuberculous. This is discouraging, for such animals may be left in herd. On a second test these animals may react. We are reasonably sure of getting all by a second test, and by physical examination. *The question of slaughter and compensation is a grave one. It does no good to find diseased animals unless they are destroyed. They must be paid for.* It is practically impossible to exterminate disease without compensation for slaughtered animals. Usual experience shows that to push the work and succeed payment must be made. How much shall be paid? *If some States pay more than others, the diseased animals will be run into the States paying the highest price.* The question of re-stocking herds is one that must be considered. The State Boards must co-operate with each other, and with the national authorities. *The municipal Boards and town Boards should also co-operate. They have power to stop sales and to break up affected dairies.* The national Government has made an appropriation which will be used to determine the extent of the disease in the vicinity of the Department. The State Boards will be aided by the experience of the Department.

The following paper was read by Dr. M. R. Trumbower, State Veterinarian of Illinois:—

#### WHAT SHALL WE DO WITH TUBERCULOUS CATTLE?

Much has been written lately about the control of tuberculosis among cattle. This subject has been treated generally from an ideal stand-point. We all know what ought to be done, but the difficulty is to make others believe as we do, and aid us in securing State legislation to that end. Prof. James Law, of Ithaca, N. Y., presents an ideal solution of the question, comparing favorably with Bellamy's "Looking Backward"—it looks well in print.

We, however, are living in a time when business methods are the rule, and dollars and cents control the market.

Before we can hope to accomplish much in the eradication of tuberculosis, and for the protection of consumers of milk and meat, we have to create public sentiment favoring and demanding State laws in furtherance of this object. If we ask too much in the beginning, before the public appreciates the necessity, we only defeat our object. We must ask for something practical, and at the same time avoid antagonism from those who are sensitive about individual supremacy in the control of private and legitimate business.

We must first educate the public. We should have representatives, chosen on account of their familiarity with the subject, to attend breeders', farmers', and dairymen's conventions and instruct them about the nature of this disease; how it may be transmitted by co-habitation, as well as to persons who use milk or meat from such diseased animals; how breeders should protect their stock and breeding interests by taking proper precaution that no affected animal be purchased or sold by them.

We must interest local and municipal Boards of Health, and other public health officials, physicians, etc., in protecting their citizens against the use of milk or meat of tuberculous cattle. So long as they remain oblivious to this question we cannot expect to accomplish much in weeding out tuberculous animals from dairy herds.

The owner will not permit it, and if we fail to obtain support from those who ought to be alive to the necessity, we shall fail in accomplishing anything except to make our action odious. I am doubtful about the general government being able to enforce special laws that would give it control of the measures necessary to apply, for the States are very jealous of their rights. States can, however, secure valuable and very important aid from the general government by co-operating with it. Interstate traffic, which plays a very important part in our meat and milk product, can be controlled only by the general government.

What State legislation do we want?

The State should make provision that all cattle kept for breeding purposes be inspected at the request of the owner, and if found affected with tuberculosis the owner shall obtain a fair valuation from the State, and destroy such diseased animals in a manner as the law shall direct.

Dairymen who furnish milk to cities should be compelled to have their herds examined by a veterinarian, chosen for competency by proper State authority. These inspections should be made at least every three months, and all suspected animals isolated, and the sale of milk from them prohibited. Each State should issue a bulletin containing full information regarding bovine tuberculosis, giving symptoms which would enable a farmer, breeder, or dairyman to suspect or recognize this disease. The owner should report all cases to the proper State authority. We must have a definite knowledge of the prevalence of the disease before we can hope to obtain necessary legislation to control it.

Citizens should be taught not to purchase milk from any dealer who is not registered by the local Board of Health; all such milk must be obtained from inspected and certified herds. By the inspection of these

breeding and dairy herds we will obtain statistics, so that when we ask our legislative bodies to take action and make appropriations we will have important and weighty arguments to present. So long as the existence of tuberculosis among cattle is only a common rumor, agitated by veterinarians and State Sanitary Boards, our lawmakers will regard us as simply wishing to obtain more money to spend foolishly or otherwise.

When we ask for State enactments to control this disease we shall have to ask for a very large sum of money, and provide for competent inspectors for each county.

Ephemeral actions such as have prevailed in a few States accomplished very little. They do not reach far enough, are too irregular, and reach too few animals.

Breeders and dairymen should pay the expense of examination, for it will be to their interest to have their herds examined.

We cannot expect to obtain State appropriations to pay a large corps of inspectors, but I believe we can obtain appropriations to pay for condemned cattle.

Inspectors should pass an examination and be subject to appointment and removal by the proper sanitary officer of the State. The State law should prescribe the fees for examination, so that no extortion may be practised upon the owner by an inspector.

Persistent effort on the part of those whose duty it is to keep this subject before the people will eventually be rewarded by success.

Dr. Trumbower said his paper was written from the stand-point of the Western States, where this subject has been but little agitated. Illinois, Iowa, and Missouri are not yet at work, while some of the Eastern States have been at work for years.

Dr. Robert Ward read the following extracts from the reports of the State Live Stock Sanitary Board of Maryland:—

In concluding our report, this Board desires to direct your attention to the sad record of mortality from that dread disease, tuberculosis, or consumption, among the citizens of Baltimore, and the fact stated that out of one hundred and fifty causes for the deaths reported, one seventh of the whole results from this one disease, and it may not be out of place to add that Dr. Biggs, of New York, in his report says, the high mortality from this disease in this city, over six thousand in 1892, is indubitable evidence of the necessity of bringing it under the sanitary *surveillance* of the Department. The same number of cholera patients in one year would cause alarm. The affinity of bovine tuberculosis to the same disease in the human family must not be lost sight of because the dairy products, milk and cream, as well as the flesh, hold the germs giving rise to the disease, therefore, not only should a system of dairy cows' milk inspection be advanced, but a more than careful examination of the dairy cows individually, as the factors of the milk, be advanced also. As we before remarked, the extirpation of this disease of bovines must be a national government affair, for all States are more or less afflicted.

By reference to the tabulated statement of the work of the Bureau given herewith it will be seen that, while the *post-mortem* examinations have shown a steady decrease in the number of cases of contagious pleuro-pneumonia, it has been the reverse with tuberculosis.

When it is remembered that the Bureau has not been allowed by law to slaughter and pay for tuberculous animals as such, but that the cases of tuberculosis mentioned in this report (with but few exceptions) are those of animals slaughtered because they had been in contact with contagious pleuro-pneumonia, or were such as were found at slaughter houses while investigating for that disease, the number of such cases will appear still more significant.

This Board has fully realized the importance of a suppression of this disease, but having seen clearly that the funds placed at its command by the legislature were entirely inadequate to accomplish that end, they have thought best to purchase and slaughter at the expense of the State in such cases only as were more than usually urgent.

In the opinion of this Board the suppression of tuberculosis is more important than that of contagious pleuro-pneumonia, for, while the latter disease affects animal only, the former destroys human life.

It is a fact now well admitted by scientific and medical authority, as well as by the veterinary profession, that tuberculosis can be communicated from animals to man. As the meat is generally well cooked before being eaten, it is probably not so often contracted from it, but the milk of tuberculous cows being seldom boiled is a more fruitful source of disease.

In the report of the Commissioner of Health for Baltimore City, for the year 1888, is the following statement :—

Total combined mortality (human) from all causes, 8,936.

Mortality from consumption, 1,151.

Ratio to total mortality, 12.88 per cent.

From consumption, 16,332.

Ratio to total mortality, 14.31 per cent.

When it is known that this report gives about one hundred and fifty different causes for the deaths reported, the fact that nearly one seventh of the whole results from tuberculosis is truly startling.

In an address lately delivered by the Chief of the Bureau in Maryland, occurs the following :—

In Baltimore the inspectors under the Bureau of Animal Industry examine most of the cattle killed at the slaughter houses where they kill cows. At these slaughter houses there have been killed from the first day of January, 1889, to the first day of August, 1889, 6,525 cattle. Of this number 2,655 were steers and bulls, the most of which came from outside the State of Maryland. The balance were cows, almost all of which came from the dairies inside the quarantine limits of six miles from the City Hall of Baltimore. Of these cows, numbering 3,875, 120 were found to be tuberculous. It must be remembered that these 120 cases were found in slaughter houses among cows killed for beef. In our inspection of the stables in Maryland, most of the work has been done within a radius of six miles from the City Hall. The only herds exam-

ined outside of that radius are those that are rumored to be diseased and which are inspected with a view of finding pleuro-pneumonia. Since the first of January, 1889, tuberculosis has been reported in 122 stables. These stables contain 1,611 head of cows, used to supply a portion of milk to the city of Baltimore. Of this number, 182 head were reported to be badly tuberculous, or 11.3 per cent of all the cows contained in the 122 stables.

It is probable that in many cases, if a careful inspection for tuberculosis had been made of all the cows in these herds, that there would have been found a much larger proportion of tuberculosis than I have indicated. When we consider that the milk from the 182 or more diseased cows is mixed with the milk from the remaining cows in these stables, it will be seen that the diseased milk sold is not that of the 182 cows alone, but of 1,611. Estimating two gallons per day as the product of each cow, there are at least 3,222 gallons of milk sold in Baltimore City each day that contain the germs of tuberculosis.

Prof. W. H. Welch, of Johns Hopkins University, in an address on "State Medicine," delivered before the American Medical Association, at Newport, June 28, 1889, says: "It has been abundantly demonstrated by numerous experiments that the milk from tuberculous cows is capable when ingested of causing tuberculosis. The milk may be infectious not only in cases in which the udder is tuberculous, but also when the tuberculous process is localized elsewhere. How serious is the danger may be seen from the statistics of Bollinger, who found, with cows affected with extensive tuberculosis, the milk infectious in eighty per cent of the cases, and in cows with moderate tuberculosis, the milk infectious in sixty-six per cent of the cases, and in cows affected with slight tuberculosis, in thirty-three per cent of the cases." He further makes the statement: "There is reason to believe that many of the so-called scrofulous affections in children are due to infections from milk derived from tuberculous cows."

It was stated on the floor of the Senate last winter that statistics showed that five hundred thousand children die annually in our cities in the United States, from the use of diseased milk.

*From a sanitary point of view there is no disease in the whole category of diseases that is of the same importance. The financial interests of the people are second to the interest of health.*

Accepting these statements as true, there can be no doubt of the importance of this subject to every citizen of this State. It is clearly within the province of this legislature to enact such laws against the sale of tuberculous meat and milk as may be necessary to give them efficient protection.

Dr. Lyman moved to take up the question of permanent organization, and the motion prevailed. Dr. Turner moved that the report of the committee be read by sections and that the convention proceed to take such action as might be necessary to perfect organization, which was done.



Moved by Dr. Lyman that officers be elected. Seconded by C. D. Bartlett, of Illinois.

Dr. Turner, of Missouri, nominated Hon. Levi Stockbridge, of Massachusetts, for President. He was elected by acclamation, and at once declined.

J. A. Potts, of Missouri, and Robert Ward, of Maryland, were then placed in nomination for President. Dr. Turner and Franklin Dye were appointed tellers, and after a number of ballots Mr. Potts was declared elected President. Dr. Ward was then elected Vice-President by acclamation, and A. M. Brownlee, Secretary. Moved and seconded that the officers elected constitute an Executive Committee to make all arrangements as to time, etc., for next meeting. The motion prevailed.

Motion that the Chair appoint committee of five to draft constitution and by-laws, and report at next meeting.

The Chair named the following gentlemen as said committee: —

J. A. Potts, of Missouri; Dr. Robert Ward, of Maryland; A. M. Brownlee, of Illinois; Dr. George S. Bailey, of Maine; J. E. Baringer, of Michigan.

A. M. Brownlee moved that the next meeting be held at Chicago. Seconded, and motion prevailed.

The time of next meeting and all other details were left to the Executive Committee.

On motion, the subject of "Tuberculosis" was again taken up.

Dr. Lyman, being called for, said he came to the convention as a questioner. Was very much interested in Dr. Salmon's talk, and was anxious to hear from him concerning the best methods of disinfecting the premises. Dr. Salmon occupied a position which enabled him to collect facts from a great many sources, and his testimony on this point would be valuable.

Chairman Stockbridge said he had in mind a New England barn, roomy and one hundred years old. Full of tuberculosis. Occupied by a herd of Jerseys. Animals becoming diseased constantly. He asked Dr. Salmon how such a barn could be disinfected.

Dr. Salmon said the work would be difficult. The floors should be torn up, and all wood-work and lining taken out and burned. Sulphuric acid and bi-chloride of lime used as a whitewash. The thoroughness of disinfection depends on construction of barn. Bi-chloride of mercury is quite reliable, but very poisonous. Enough may be left to do damage. Sulphuric acid is good, but dangerous in inexperienced hands. Barns should be dry and carefully cleaned.

Mr. Hinds, of Michigan, wanted to know in how low a temperature the tuberculosis bacilli would survive.

Dr. Salmon said the bacillus was not affected by a low temperature. He will live in ice. Summer time is the best for disinfecting. Dry heat kills him. *A month or two of dry hot weather will serve to disinfect an unoccupied barn.*

The chairman said the air in tuberculous barns was full of bacilli. Would burning sulphur kill them?

Dr. Salmon said sulphur did not do much good. A spray should be used and the disinfectant thrown through the barn, and all parts be thoroughly sprayed.

Dr. Ward spoke of a herd of Jerseys infected with tuberculosis and pleuro-pneumonia. The herd was destroyed and the barn left empty for some months. Another herd was then put in. He was requested to examine the herd for pleuro-pneumonia. Did so. Found tuberculosis. Herd must have been infected from barn. A fine Jersey cow was killed. Typical case of tuberculosis. Specimens sent to Johns Hopkins University. The cattle were sent to slaughter house in Baltimore and thirty head were killed. Two thirds showed tuberculosis. Ordered mangers taken away and floor taken out. Dry manure burned. Lining taken out. Disinfected with quick-lime, chloride of lime, and carbolic acid. This occurred in August, and the barn was empty until next spring. There was no more trouble. Saw the man some days ago. He said: "We have no more trouble. We don't keep those rotten Jerseys."

Dr. Lyman asked the value of steam delivered direct from a boiler through a proper hose and nozzle.

Dr. Salmon said that he thought well of it, if it could be properly applied; that the difficulty would be in making the application; he would have some experiments made in this direction by the Bureau.

Dr. Lyman asked how long after tuberculin test before second test should be made.

Dr. Salmon said second test should be made within two or three months. After second test and taking out all diseased animals, then a year might elapse. With two tests and physical examinations, all diseased animals should be got out. Then one examination a year would suffice. In using tuberculin a two-degree reaction is sufficient to condemn an animal.

Mr. Hinds asked about the temperature. If animals are driven half a mile and put up, their temperature will be above normal.

On motion, Franklin Dye was elected Vice-President.

Convention adjourned, to meet at 10 A. M., Thursday.

## THURSDAY'S SESSION.

The convention was called to order at 10 A. M., Franklin Dye in the chair.

On motion and second, it was ordered that the Secretary have five hundred copies of the proceedings of this convention printed for the use of the various Boards.

The subject under consideration being "Uniform Quarantine Line," Dr. Turner, of Missouri, asked Dr. Salmon how the Government determined the quarantine line.

Dr. Salmon said by inspection and experience. If cattle from a certain county or section infect other cattle, careful examination of the cattle in that region is made. The doctor said these questions of uniform quarantine line and uniform State laws were very important and should be carefully considered. We have seen how difficult it is to get uniform laws. We have had great hinderance in our work because of the diversity of laws. If each State has its own quarantine line there is great difficulty in shipping cattle. It is almost impossible to ship across different States. At one time the Texas cattle trade was almost destroyed. When new diseases break out, new regulations will be put in force in the different States. These regulations conflict. Trouble occurs. A party shipped cattle from Texas to Dakota. He had a certificate of good health from the United States authorities. Yet he was compelled to have his stock examined by the State Veterinarian. This is a question of interstate commerce. A certificate by a United States Inspector should be sufficient, and should be accepted by all the States. The power to regulate interstate cattle trade should be exercised by the general government. Then each State could take care of its internal matters and be safe from all danger from outside shipment. If one State pays liberally for diseased animals and others do not pay, the diseased animals will be run into the States paying the highest price. So the price paid should be uniform. We have worked for ten years to complete government inspection. Have done much, but the work is not complete. We must secure from the general government such service as we have a right to expect, and we must have uniformity and co-operation. The States should be protected from invasion by United States inspection.

Mr. Hinds approved of Dr. Salmon's position. Interstate commerce laws should deal with these questions. He at one time had charge of inspection at Chicago, and knew of the difficulties of the

Texas fever question. In shipment, the Government should control, but States should control the sale and shipment inside the State lines. Different States have different environments, different legislatures. Difficult to secure uniform laws. Never had case of pleuropneumonia in Michigan. Michigan laws are the best. Have been able to protect stock to a wonderful degree.

Dr. Trumbower said there were two points in this Texas fever question. It should be controlled by reference to the effect produced by Texas cattle, regardless of the tick theory. It was a question of practical communication of disease. The Government excluded certain counties in Arkansas, not on account of the tick, but for other reasons. The States should conform to the line as laid down by the Government. The tick theory is not in it. The question should be "Will cattle from a certain district communicate the fever?" We have had no cases in Illinois save such as could not be guarded against. Mr. Mitchell, vice-president of the Chicago & Alton railroad, lost six head of cattle last summer. Their only chance for infection lay in droppings from the cars in which southern cattle were being shipped. He thought Illinois had best laws. States should have uniform laws. Should pay same price for diseased animals. No State can do satisfactory work without paying. The States should trust the general government. The Bureau of Animal Industry will do right. In regard to paying for diseased animals, Boards should have wide range. If you can't trust your men don't appoint them.

Dr. M. Stalker said that forty-four States would not adopt uniform laws. They should act in harmony with the general government. Co-operation was better than uniformity. What would be considered good policy for one legislature would not be considered good for another. Legislatures have not given the subject much attention. In one direction might approach uniformity. In Iowa no special legislation had been passed in regard to Texas fever. All parties who ship diseased cattle are held responsible for damages. Railroads are made to pay. This acts well in Iowa, and has prevented many outbreaks of fever. Iowa had no pleuro-pneumonia when it was in all adjoining States.

Mr. Dye said possibly one reason why the general government had not succeeded fully in its plans was because of the lack of co-operation on the part of the State Boards. New Jersey was a great stamping ground. Cattle were passing through continually, and the State was peculiarly liable to infection. New Jersey wants co-operation. The objective point in religion is to save the soul. Objective point in uniformity is to suppress disease.

Dr. Stalker said each State here represented thought its laws were the best. They were like the different denominations in religion. Neither would give way to the others. How then was uniformity possible? The States might co-operate, but did not think they would pass uniform laws.

Dr. Ward spoke of the great difficulty they had in the war against pleuro-pneumonia, in regard to the admission of Dr. Salmon and his staff. He advised co-operation. He was censured. The question of States rights was raised. In 1888, Maryland passed a law containing clause giving State Board power to co-operate with the Bureau of Animal Industry in the suppression of contagious or infectious diseases. They were now very anxious to get rid of tuberculosis. To do this, general work should be done in all the States.

Dr. Stalker said they had a co-operative clause in Iowa laws.

Dr. Trumbower said Illinois wanted co-operation and uniformity. General laws might run through all the States. Each State would have her own peculiar interests to look after, but the fundamental laws should be the same.

Mr. Turner said Kansas was much interested in the quarantine law. Eighty thousand Texas cattle were now feeding in Kansas. Kansas has her own quarantine line. They were firm believers in the tick theory.

Dr. Salmon said on the subject of uniform laws the gentlemen are not far apart. He was sure that those who brought up this subject had not in mind a uniform wording of the laws, but simply general uniformity. Every one must recognize the influence that State Boards and veterinarians exert. Laws are practically drafted by such Boards, and the Boards will have more influence when their recommendations are more just and equitable. Conventions like this are important and highly instructive. Boards must get together and discuss these questions, and mature opinions will be obtained on these matters. States should determine what diseases are dangerously contagious and infectious. Some look after glanders, but no other diseases. Individual action is not so good. Illinois may have glanders law, but horses are shipped in from all adjoining States. If there is not competent inspection for glanders in those States, Illinois is constantly liable to glanders infection from outside sources. Our Department this year has appropriation for sheep-scab and tuberculosis. There must be uniformity of laws for the suppression of such diseases. Mr. Hinds has said that we would not again have an emergency like that created by pleuro-pneumonia. I am not sure of this. There is danger now of radical individual action on the part of the States concerning tuberculosis and other threatening diseases. This association should secure uniformity if possible.

On motion and second, it was ordered that the question of Uniform State Laws be made a special order on the programme for the second day of the next meeting of this association, the discussion to be led by Dr. Salmon.

The Secretary said that at a convention held at Kansas City last year, Mr. Kleberg, of Texas, and others were appointed a committee to confer with the Bureau of Animal Industry in regard to a series of experiments to determine if Texas cattle cleansed of ticks had power to communicate Texas fever, and he would be glad to hear from Dr. Salmon as to what had been done.

Dr. Salmon said that the subject was important and interesting. So far as the Department had been able to determine, the tick is the only known instrument of communication. Have made enough experiments to demonstrate that the tick does communicate the fever, and have not been able to discover any other means of communication. Have only had one case in which ticks were not a known factor. It is very difficult to get rid of ticks. Have had cattle carefully picked every day or every other day. The small ones are so minute it is extremely difficult to get all of them. There are several varieties of ticks. The ticks from North Carolina are free from the disease. Recently the attention of the Department has been called to a new tick from Texas. It has been seen only once before in the United States. It is found in the ears of cattle. It is a new tick and creates a new disease. It seems to be a close relation of the Persian tick, which communicates a peculiar fatal disease. It causes an enormous swelling of the brisket and runs its course in a week. Mr. Kleberg has made very ingenious dipping vats, seven or eight feet deep, having a trap door. The cattle are dropped off and go under. They swim out and stand on a dripping floor. Two thousand can be dipped in a day. The vats are filled with a liquid preparation which, it is claimed, kills all the ticks. Mr. Kleberg does not know what the preparation is. If claim is correct it will be a great thing for Texas. It will solve the question, as cattle could be dipped, and shipped anywhere without danger of infection. The Department has been asked to co-operate. Hope soon to be able to send a man to Texas to investigate. It is important to kill all the ticks, and they are hard to kill. They withstand the attack of strong acids and corrosives. Department has not discovered a substance which will kill the tick without injury to the cattle. Mr. Kleberg's solution, as near as we can determine, is some preparation of coal tar. It is a matter which requires a careful investigation. If correct it will be a good thing for Texas. If we find that the preparation kills the ticks, then dipped cattle will be shipped north, and brought into contact with northern cattle, and in-

vestigations made to determine if the power of communicating the fever vanishes with the ticks.

DR. STALKER. Does the tick give the fever to the cattle, or do the cattle give it to the tick?

DR. SALMON. Don't know. We do know that the tick will give the fever to northern cattle, and that this power is transmitted through three or four generations of ticks. The Texas fever parasite is found in the blood of Texas cattle, and remains there for some time after the animal is shipped north. Can't tell which has it first.

On motion and second, it was

*Resolved*, That this convention extends its hearty thanks to the Secretary of Agriculture, Hon. J. Sterling Morton, for the use of this hall, and to Dr. Salmon for his very able assistance in our discussions.

And on motion and second, the convention adjourned to meet in Chicago at time to be designated by the Executive Committee.

LEVI STOCKBRIDGE, *Chairman*.

Attest: A. M. BROWNLEE, *Secretary*.

The following letters of instruction, orders, regulations, forms and records were issued and prescribed by the commission under the law of 1894:—

COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,

SECRETARY'S OFFICE, 50 VILLAGE STREET, July 13, 1894.

*To the Mayor and Aldermen of Cities and the Selectmen of Towns,—*

GENTLEMEN: Herewith please find copy of a law passed by the present Legislature and signed by the Governor on June 20, 1894, codifying and consolidating all past laws relating to contagious diseases among the domestic animals of the State, to which we respectfully beg your early and earnest attention.

You will especially notice the following points:—

By Sect. 59 certain laws relating to the subject-matter of contagious diseases among domestic animals are repealed, as are all inconsistent portions of other laws on the same subject.

Under Sect. 1, it becomes the duty of city and town governments to appoint, this year before July 20, and following years during the month of March, one or more inspectors of animals and provisions, and to provide for their receiving reasonable compensation for their services.

Under Sect. 59, inspectors already appointed under Chap. 58, in

the absence of any other appointment, will retain their office for the balance of the term, subject to the provisions of this act; but as the duties under the new act are materially increased, you should make a re-appointment of the same man or of some other person. A new oath of office should be taken, in either case.

You are further required to send to this office, at once, the name, address, and former or usual occupation of the appointee or appointees.

Sect. 2, besides providing a penalty for failure to comply with the provisions of Sect. 1, gives to the Cattle Commissioners power to fill vacancies so caused; to remove inspectors who are, in their opinion, incompetent; to appoint others in their place; and to fix the compensation of their appointees, which is to be paid by the city or town for which each appointment is made.

Sects. 17 to 23, inclusive, are all new, and relate entirely to the business of slaughtering cattle. They are especially intended to prevent the further killing of tuberculous cattle for food purposes,—a practice which has prevailed to some considerable extent in the immediate past, and which it is hoped will now be reduced to a minimum. The Board, believing that this trade is a menace to the public health, asks your hearty co-operation, and trusts that you will see that both the letter and the spirit of these sections are complied with; and further, that you notify all persons engaged in the business of slaughtering cattle within the limits of your city or town of the provisions of this act, and request them, if they desire to further conduct such business, to make application, under the provisions of Sect. 17, which should be strictly complied with in every particular; and the following form of application is suggested:—

APPLICATION FOR LICENSE TO SLAUGHTER CATTLE UNDER THE PROVISIONS  
OF THE ACTS OF THE YEAR 1894, CHAP. 491, SECT. 9.

I                      of                      hereby make application for a license for myself and                      to carry on the business of slaughtering cattle within the limits of the city (or town) of                      for the year ending April 30, 189 .

In support of this application I state the following facts:—

The names in full and addresses of all owners and persons carrying on said business are as follows:—

NAMES.

### ADDRESSES.

The slaughter house or establishment where the business is to be conducted is described as follows \_\_\_\_\_ and the location of the same is \_\_\_\_\_



The business to be carried on thereat and the products thereof to be sold for use for food are as follows: —

(Give details in full.)

The estimated number of cattle to be slaughtered per week thereat are

I (or we) intend to slaughter cattle at said establishment on the following days: —

(Signed)

COMMONWEALTH OF MASSACHUSETTS.

ss. Then personally appeared the above-named  
and made oath that the foregoing statements by him subscribed are true, except such matters as are stated upon estimation, and as to them that they are true to the best of his knowledge and belief.

Before me,

*Justice of the Peace.*

NOTE.— If blank applications for licenses under this section should be printed by your city or town, it is suggested that the provisions of Sects. 17 and 22 be printed upon the back of these forms.

If licenses are printed, it is suggested that Sects. 19 and 22 and 23 be printed upon the back thereof.

Care should be taken that the licenses are issued in strict compliance with Sect. 18 of the law, and in accordance with the applications. Records of both must be carefully kept.

Immediately after the expiration of the period within which licenses are to be issued within the provisions of this section, you are requested to forward to this office a list of all persons licensed under the provisions of this section, giving the names of the owners and persons licensed, and the place where the business is to be conducted; and further, to send us, from time to time, the names and addresses of all persons that you have reason to believe are conducting the business of slaughtering contrary to the provisions of Sects. 17 to 23 of this act.

Your attention is also called to the provisions of Sects. 29, 31, 32, and 34 to 40, inclusive.

In closing, the Commission request you to take such steps as you deem necessary or expedient to inform persons within the limits of your city or town of the provisions of this act and the importance of its being faithfully complied with.

For the Board,

CHARLES P. LYMAN, *Secretary.*

## COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,  
SECRETARY'S OFFICE, 50 VILLAGE STREET, July 13, 1894.

*To Boards of Health, —*

GENTLEMEN: We desire to call your careful attention to the act passed by the present Legislature and signed by the Governor on June 20, 1894, codifying and consolidating all the laws relating to contagious diseases among domestic animals in this State; and especially to Sects. 24 to 35, inclusive.

Under the law now in force, inspectors of animals and provisions are to be appointed, as heretofore, by the mayor and aldermen of cities and selectmen of towns (see Sect. 1), except that in cases where no appointment is made, or the appointee fails to properly perform his duties, they may be appointed by the Board of Cattle Commissioners. (See Sect. 2.) Under the provisions of Sect. 28, these inspectors, besides having specific duties provided by this statute, are made the agents of your Board for all purposes designated in the act, but beyond this you are given the power to appoint additional agents and assistants whenever, in your judgment, such a measure becomes necessary to aid you in enforcing all the provisions of this law that relate to your Board.

You are given the general care and supervision of the matter of suppression of contagious diseases of animals within the limits of your city or town (see Sect. 27), and you are expected to see that the law is carried out within such limits. In this connection your attention is called to Sects. 24 and 25. You will kindly note, particularly, that any regulations made by you under this authority *shall be spread upon your town records, and that a certified copy of them shall be immediately sent to the Cattle Commissioners.* All such regulations will remain in force until terminated by your orders or by superseding regulations made by this Board.

While it is made the duty of each inspector to examine all of the animals within his district, and while this officer is given the power to quarantine all suspected animals, without further orders from you, it is also made your duty to see that all cases of contagious disease among domestic animals, within the limits of your city or town, are immediately detected, and that the quarantine is properly placed. You will notice that all quarantines imposed by inspectors are obliged to be upon the premises of the owner of the suspicious animal, but that quarantines imposed by your orders may be upon such premises or any such other place or places as you may designate. The expense of quarantine, when imposed by you upon premises other

than those of the owner of the animal, are to be paid by the town, assisted by the Commonwealth. (See Sect. 27.)

All quarantines imposed by inspectors or by your Board are to remain in force until removed by your Board or by the Board of Cattle Commissioners, or any one of its members. (See Sects. 8 and 26.) Hereafter all notices of quarantine are required to be made in writing (see Sects. 7, 8, and 9), and forms of such orders, with the returns, will be furnished to your Board upon application here. Full instructions have been given to inspectors, so far as we have their addresses, as to the manner of serving and returning these orders of quarantine. In case you should appoint additional agents, as provided for, it will be your duty to see that these instructions are fully carried out by them.

It is made the duty of every person having knowledge or reason to suspect the existence of a contagious disease within your city or town to give written notice to your Board. (See Sect. 29.) Upon the receipt of this notice, it is the duty of your Board to cause such animal to be inspected by the regular inspector or by some competent veterinarian specially appointed by your Board. In all such matters you are requested to act as a Board and not individually, and it is suggested that, if you deem it advisable, a vote be passed by your Board, instructing your clerk that, upon the receipt of any such notice, he shall notify an inspector within your city or town to immediately examine the animal and quarantine it if necessary. If such examination is made by any person other than a properly appointed inspector it should be remembered that he has no power of entrance or quarantine, *except by specific vote and authority from your Board.*

#### SLAUGHTER HOUSES.

Your special attention is called to the provisions of Sects. 17 to 23, inclusive, in relation to slaughter houses and the inspection of cattle at the time of slaughter. There is no specific duty required of your Board in this matter, it being the duty of the town or city officers to issue licenses and of the inspectors to attend to all inspections; except that if there is more than one inspector in your city or town, it is your duty to properly divide the work among such inspectors and designate which inspector shall attend to each establishment slaughtering cattle. (See Sect. 20.)

Under Sect. 10, inspectors are authorized to make inspections of carcasses, meat, fish, vegetables, etc., and under Sect. 12 to make inspections of veal. In all of these matters, other than animals, carcasses, and meat, the inspectors will act entirely for your Board, and will not report to this Commission, except when evidence of contagious disease is found existing in meat or carcasses.

## PENALTIES.

It will be your duty to see that the provisions of this law are carried out within the limits of your city or town, and that prosecutions are duly instituted in all cases of failure so to do, or for breaches of the provisions of the act; and in this connection your attention is called to the following sections:—

Sect. 13, under which penalties are imposed on persons interfering with proper inspections.

Sect. 14, where power is given to issue search warrants.

Sect. 15, under which penalties are imposed on persons selling or offering for sale diseased meat and produce.

Sect. 22, where penalty is imposed for violations of the law as to slaughter houses and killing cattle without causing them to be inspected.

Sect. 29, where penalty is imposed for failure to give notice to your Board of the existence of contagious disease.

Sect. 34, under which penalties are imposed for disobeying your orders or those of inspectors duly appointed by you; for breaking quarantine or driving diseased animals within the limit of your city or town; and other similar offences.

Your attention is also called to Sects. 3, 31, 32, 42, and 57.

In closing, this Board earnestly requests your careful examination of this act, and your earnest efforts to see that it is enforced, as far as possible, within the limits of your city or town; and you are requested to send to this office any information that you may receive of persons who are disobeying the provisions of the law, and especially such slaughter houses or similar establishments that you have reason to believe are slaughtering cattle without causing them to be inspected. Please also forward us the names of all veterinary surgeons or those regularly practising medicine among animals that you know of.

For the Board,

CHARLES P. LYMAN, *Secretary*.

## COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,

SECRETARY'S OFFICE, 50 VILLAGE STREET, BOSTON, July 19, 1894.

*To Inspectors of Animals and Provisions,—*

GENTLEMEN: Herewith you will find a copy of a law passed by the present Legislature and signed by the Governor on June 20, 1894, codifying and consolidating all of the laws relating to contagious dis-

eases among domestic animals in this State, to which we desire to call your careful attention. This law, together with such regulations and instructions as you may receive from time to time from the Cattle Commissioners and the Board of Health of your city or town, will constitute the basis of your work as inspectors in the future.

The law under which you were appointed has been repealed. The officers of your city and town have been instructed to reappoint you under the new act, or to make some new appointment. In the absence of such appointment you will continue to hold your office for the balance of the term for which you were appointed, unless you are sooner removed, but after June 20, 1894, all inspectors will be subject to the provisions of this act.

Under Sects. 3 and 42, it is made your duty to carry out and enforce all regulations and orders issued by the Board of Health of your city or town, or by the Board of Cattle Commissioners or any member thereof in the discharge of his or their duties.

It is your duty, under Sect. 4, to make regular and thorough inspections of all neat cattle within the limits of your city or town. These regular examinations are to be made in accordance with Order No. 1, as follows:—

*Order No. 1.*

At a meeting of the Board of Cattle Commissioners, held on July 12, 1894, it was

*Voted*, That hereafter inspectors be *ordered* to make two thorough examinations of cattle in each year,— one during October, or as soon as possible after the animals come in from pasture; the other during March, or just before the animals are turned to pasture. Reports of the results of these examinations, upon the proper blanks (Form No. 1), must reach this office on or before the fifteenth day of December and the fifteenth day of May in each year.

That inspectors be also *ordered* and advised to make inspections of any herds, or of any animals within their district, whenever any emergency arises, or whenever in their judgment, because of numerous changes or otherwise, it is better for the service for them to do so.

By order of the Board,

CHARLES P. LYMAN, *Secretary*.

Under Sect. 5, you are to keep a complete record of all inspections made by you, upon the stub accompanying Form No. 1, and to make regular returns of all such inspections to the Board of Cattle Commissioners, as directed in the certificate.

Under the provisions of Sect. 6, it is made your duty to give a certificate to the owner of all healthy herds examined by you. This certificate should be made upon Form No. 2.

Under Sect. 7 of this act, you are given the power, and it is made

your duty without any order from the Board of Health or of this Commission, to quarantine all animals which you suspect or have reason to believe are affected with a contagious disease, which diseases are defined under the act to be as follows : glanders, farcy, contagious pleuro-pneumonia, tuberculosis, Texas fever, foot and mouth disease, rinderpest, hog cholera, and rabies (see Sect. 37).

It is also your duty to quarantine any animal whenever you are directed so to do by the Board of Health of your city or town, or by this Board or any of its members ; and all quarantines imposed by you must be upon the premises of the owner, or of the person in whose charge the animal is found, unless you have specific directions to the contrary from this Board or from your Board of Health.

All quarantines imposed by you are to be by an order in writing, upon Form No. 3, blanks for which will be furnished you upon application to this office. All of the blank spaces in this form should be carefully filled out by you at the time of its delivery, giving as accurate a description as possible of the animal, so that it may be properly identified.

You will note that this form is in duplicate, with a notice attached thereto. You will also notice that there is a blank stub, to be filled out by you whenever a quarantine is imposed.

The original order of quarantine is to be filled out and signed by you and served as required in Sect. 8 ; that is, you will fill out the blank after the word " To " with the name of the person to whom you deliver the same. If the owner is known to you, and resides within the limits of your town, deliver this in hand to him, otherwise to the person in charge of the animal, " and in every case be careful to state accurately whether the person to whom you delivered the order is the owner or the person in charge, or if it be served by posting, see that the return properly shows this." If you cannot by reasonable means ascertain either of these, you may post the order upon the premises where the animal is quarantined, but this should not be done except where it is impossible to reach the owner or person in charge, unless you receive special orders from your Board of Health or from this Commission or any of its members to do so. In all cases fill up and sign the duplicate blank order of quarantine exactly as you fill up and sign the original. Do not neglect to properly and fully fill out blank return of service which is printed upon the back of the duplicate order of quarantine. This duplicate, together with your return of service, should be sent immediately by mail to this office (see Sect. 9), and a record of the facts of your quarantine should be carefully filled in the accompanying blank form, which will serve as your record. The notice attached to the form of quarantine should also be

filled out carefully, signed, and delivered to the Board of Health of your city or town. You have no power to remove any quarantine imposed by you, except upon written order of this Board or any of its members, or of the Board of Health of your city or town.

When you have forwarded notice to this Board and to the Board of Health, and have served the order upon the owner or person in charge, as above directed, it will be your duty to refrain from giving any information regarding the matter to any person whatsoever.

All orders of this Board under the provisions of this act supersede those of your Board of Health (Sect. 40).

Under Sect. 10, you are authorized to inspect the carcasses of all slaughtered animals, all meats, and such other food products as are therein designated. You will act in conjunction with your Board of Health, except as to animals and meats inspected for the purpose of detecting contagious disease. Whenever, upon the inspection of any carcass, which within the meaning of this act is defined to be the dead body of an animal before any of the vitals or other portions of the body are removed, you find that any portion of the body of the carcass is affected with tuberculosis or other contagious disease, you will condemn the whole of the same, see that it is properly buried or otherwise safely and effectually destroyed, and send a notice of the facts to this office (see Sect. 11). If, however, at the time of seizure, the owner of the property notifies you in writing that he desires to appeal to the Board of Health, you will immediately notify said Board of such appeal and will retain the custody of the carcass until such appeal is decided, which decision will be final.

In the matter of inspections of veal, as provided in Sect. 12, you will act entirely with your local Board of Health.

Power is given you, under Sect. 13, to enter, for the purpose of making inspections, upon any premises where animals, carcasses, meats, etc., are kept, and any person who interferes with this right of entry will be subject to a heavy penalty for so doing. If this right is denied, you should first demand entrance to the premises or the disclosure of the secreted animal or article; and then, if still refused, you should at once enter a complaint before the proper officer, under Sects. 13 and 14 (see also Sect. 57). Do not in any case use force.

Your attention is further called to Sects. 17 to 23, inclusive.

An important branch of your duty will be the examination of *cattle* at the time of slaughter, under the provisions of these sections. You are urged to see that there are no infractions of this law, and whenever you have any knowledge that any person is carrying on an establishment for the slaughter of *cattle* without obtaining a license, or that any person is slaughtering, for his own use, *cattle* without inspection,

contrary to the provisions of Sect. 21, you will immediately notify this office and your Board of Health of the fact, giving details as fully as possible.

Every licensed slaughter house is obliged to state the days on which it is intended to slaughter, either in its application or by subsequent written notice, of which you are directed to keep yourself informed.

By Sect. 20, it is made your duty to be present on the days of slaughter and inspect at the time of slaughter all cattle killed at such establishment. Where practicable, arrangements may be made between you and the proprietor as to the times of day when it will be necessary for you to be present.

It is also your duty to be present at such establishment to inspect animals slaughtered on days other than those designated, when you have received reasonable notice of such slaughter.

You will also inspect at the time of slaughter, as defined by Sect. 21, *cattle* slaughtered by persons not regularly engaged in the business, whenever you receive reasonable notice from them of their intention to slaughter. You should keep a careful record and make proper returns of the same to this office upon the prescribed blanks. In the inspection of slaughtered animals, whenever the carcass is found to be diseased you will proceed as directed in Sect. 11.

You will note the provisions of Sect. 22, as to penalty incurred by persons who fail to cause their animals to be properly inspected, or who deal with meats of animals not properly inspected.

Your attention is further called to the provisions of Sects. 27, 29, and 30, also Sect. 35, and you are requested to call the attention of veterinarians within the limits of your city or town to the provisions of Sects. 29 and 35.

The Cattle Commission hereafter will consist of five members instead of three. Their names you will find affixed to this circular.

Your attention is also called to the provisions of Sects. 38, 39, and 40.

Under the provisions of Sect. 45, this Board, or any one of its members, are authorized to kill animals affected with a contagious disease when they deem that the public good requires it. These animals will be killed upon written orders issued by this Board, or of one of its members, which orders may be directed to you or to other persons or to Boards of Health, and it is your duty to strictly obey the directions contained in such order, both as to the killing and as to the disposal to be made of the carcass. You will see that all orders of Boards of Health regarding the cleansing and disinfecting of premises are promptly and thoroughly carried out.

Whenever you receive an order from the Commission to destroy an



animal, you may kill it yourself or cause it to be killed by some other person in your presence.

When the animal has been killed, you will make, or cause to be made, such *post-mortem* examination as directed by the order under which it has been destroyed, and you will dispose of the carcass in the manner therein directed.

As soon as you have completed the slaughter, inspection, and finally disposed of any animal condemned by order of this Commission, you will make your return upon the back of the order in accordance with the form therein contained, being careful to fill out all of the blanks intelligently, and return such order to this office.

No compensation is to be paid to any person for any animal killed, except in the case of *cattle affected with tuberculosis, and then only when such animals are killed by order of this Commission or one of its members.*

In cases where the carcass of an animal is destroyed by your orders, upon an inspection after slaughter, no compensation is to be paid.

When animals are killed by order of this Commission, or one of its members, as affected with tuberculosis, the owner is entitled to receive from the State one half the actual value thereof at the time of slaughter, for food or milk purposes, this valuation to be made as though the animal were not affected with tuberculosis, *but all other diseases and infirmities are to be taken into consideration.*

You will receive a special blank for animals condemned as tuberculous (Form No. 4, which will be furnished by the Commissioners at the time), and you are directed to strictly carry out the requirements of this blank. In the absence of a Commissioner, whether you act as an appraiser or not, you will take charge of the matter of the appraisal and returns for this Commission. Before the Commissioner leaves, he will name in writing upon this blank the arbitrator selected by him. He will then cause the owner to name in writing upon the blank the arbitrator selected by him, and these two will name in writing the third. When all three arbitrators have been selected, you will cause them to be sworn before a justice of the peace, and at the same time you will cause the owner to sign and swear to the statement made by him upon the blank.

If you have reason to believe that the owner has wilfully concealed the existence of tuberculosis, or by act or wilful neglect has contributed to spread such disease, you will state such facts to the office, together with your reasons for so believing.

As soon as the certificate of appraisal has been made, signed, and sworn to, and the animal has been killed and disposed of, and all

other requirements have been fulfilled, you will fill out the return upon the blank and forward the same to this office, together with a certificate of the expense of such appraisal and of the killing and burying, if any.

Forms for the records to be kept by you and of the returns to be made will be hereafter furnished you. These records should be carefully kept on the stubs accompanying these forms, clearly and distinctly; and they must be open, at any reasonable time, to inspection by your Board of Health, or by any member of this Commission.

You are further earnestly requested to thoroughly read, examine, and make yourself familiar with the law.

LEVI STOCKBRIDGE, *President*,  
CHARLES P. LYMAN, F.R.C.V.S., *Secretary*,  
M. O'CONNELL, D.V.S.,  
FREDERICK H. OSGOOD, M.R.C.V.S.,  
LEANDER F. HERRICK,

*Board of Cattle Commissioners.*

Address correspondence to 50 Village Street, Boston, Mass.

*Form No. 1.*

#### CERTIFICATE OF INSPECTION OF CATTLE.

(SECTION 5, CHAPTER 491, ACTS OF 1894.)

Town or city of \_\_\_\_\_, month, \_\_\_\_\_, day, \_\_\_\_\_, 189 .  
Name of owner, \_\_\_\_\_ . Number of cattle, \_\_\_\_\_ . Cows  
in milk, \_\_\_\_\_ . Bulls, \_\_\_\_\_ . Cows dry and not fattening, \_\_\_\_\_ .  
Fattening, \_\_\_\_\_ . Young, \_\_\_\_\_ . Oxen, \_\_\_\_\_ . Are they free from  
contagious diseases? \_\_\_\_\_ Have you cause to suppose that any of these  
animals have tuberculosis? \_\_\_\_\_ How many animals are now in  
quarantine? \_\_\_\_\_

Remarks :

*Inspector.*

*This blank to be filled out and sent to 50 Village Street, Boston.*

[The inspector's records consist of a stub duplicating this certificate.]

*Form No. 2.*

#### CERTIFICATE OF INSPECTION OF CATTLE.

(SECTION 6, CHAPTER 491, ACTS OF 1894.)

Town or city of \_\_\_\_\_, month, \_\_\_\_\_, day, \_\_\_\_\_, 189 .  
I hereby certify that I have this day examined a herd of  
cattle said to be owned by Mr. \_\_\_\_\_, of \_\_\_\_\_ Street,  
\_\_\_\_\_, as follows :—

Cows in milk, \_\_\_\_\_ . Bulls, \_\_\_\_\_ . Cows dry and not fattening,  
\_\_\_\_\_. Fattening, \_\_\_\_\_ . Young, \_\_\_\_\_ . Oxen, \_\_\_\_\_ .

In my opinion there is no evidence of tuberculosis or other contagious  
disease in any of said animals.

*Inspector.*

*To be given to the owner or person in charge.*

[The inspector's records consist of a stub duplicating this certificate.]

*Form No. 3.*

## ORDER OF QUARANTINE.

(SECTION 7, CHAPTER 491, ACTS OF 1894.)

## ORIGINAL.

*(To be delivered to owner or person in charge.)*

Town or city of \_\_\_\_\_, 189 .  
 To \_\_\_\_\_, owner (or person in charge), —

You are hereby notified that, by virtue of the powers and authority in me vested by law, I have caused to be isolated and placed in quarantine in \_\_\_\_\_ upon your premises, to wit, \_\_\_\_\_, the following animals, \_\_\_\_\_, under suspicion of having the disease known as \_\_\_\_\_, a contagious disease under the law.

You and all other persons whom it may concern are hereby forbidden to remove the same from said \_\_\_\_\_ for the purpose of slaughter, or for any other purpose whatsoever, or otherwise to break said quarantine until the further order of the local Board of Health, the Cattle Commission or any of its members.

If the above animal be a milch cow, you are warned of the danger of using the milk, and are forbidden to sell or otherwise dispose of it in any market.

*Inspector.*

[STUB.]

## ORDER OF QUARANTINE.

Town or city of \_\_\_\_\_, 189 .  
 To \_\_\_\_\_ . Animal, \_\_\_\_\_ . When quarantined, \_\_\_\_\_ . Where quarantined, \_\_\_\_\_ . Disease, \_\_\_\_\_ . Order of quarantine delivered to \_\_\_\_\_ .  
 Owner, \_\_\_\_\_ . Person in charge, \_\_\_\_\_ . Left at house, \_\_\_\_\_ . Posted, \_\_\_\_\_ .  
 \_\_\_\_\_ . When delivered or posted, \_\_\_\_\_ , day, \_\_\_\_\_ , hour, \_\_\_\_\_ . Copy sent to Cattle Commission, \_\_\_\_\_ . Notice sent Board of Health, \_\_\_\_\_ .  
 Remarks: \_\_\_\_\_

*Form No. 3.*

## ORDER OF QUARANTINE.

(SECTION 7, CHAPTER 491, ACTS OF 1894.)

## DUPLICATE.

*(To be sent to Cattle Commissioners, 50 Village Street, Boston.)*

Town or city of \_\_\_\_\_, 189 .  
 To \_\_\_\_\_, owner (or person in charge), —

You are hereby notified that, by virtue of the powers and authority in me vested by law, I have caused to be isolated and placed in quarantine in \_\_\_\_\_ upon your premises, to wit, \_\_\_\_\_, the following animals, \_\_\_\_\_, under suspicion of having the disease known as \_\_\_\_\_, a contagious disease under the law.

You and all other persons whom it may concern are hereby forbidden to remove the same from said \_\_\_\_\_ for the purpose of slaughter, or for any other purpose whatsoever, or otherwise to break said quarantine until the further order of the local Board of Health, the Cattle Commission or any of its members.

If the above animal be a milch cow, you are warned of the danger of using the milk, and are forbidden to sell or otherwise dispose of it in any market.

*Inspector.*

#### RETURN OF SERVICE.

City or town of .

On the            day of           , 189   , at            o'clock in the noon, I delivered in hand to — left at the last and usual place of abode of\* —           , to me personally known to be the owner — the person in charge† — of the animals thereby quarantined — I posted upon the within-mentioned           , being the premises where said animals are quarantined‡ — the original order of quarantine, of which the within is a true and perfect copy.

*The duly appointed and qualified inspector  
of animals and provisions for said city or town.*

[STUB.]

#### NOTICE OF QUARANTINE.

189 .

*To the Board of Health of the  
City or Town of           , —*

SIRS: I hereby notify you that I have this day quarantined in           , upon            Street, being the premises of           , the owner (or person in charge thereof), the following animals,           , under suspicion of having the disease known as           ; and I at that time duly delivered to the said            the order of quarantine prescribed by law, and have sent a copy of said notice, with my return of service of the same, to the Board of Cattle Commissioners.

*Inspector.*

*Form No. 4.*

#### COMMONWEALTH OF MASSACHUSETTS.

#### BOARD OF CATTLE COMMISSIONERS, 50 VILLAGE STREET, BOSTON.

#### ORDER FOR KILLING TUBERCULOUS CATTLE.

(CHAPTER 491, ACTS OF 1894.)

189 .

*To           , Inspector for the Town or City of           , —*  
The            now in quarantine upon the premises of Mr.           , said to belong to           , was reported to this Board as suspected of having tuberculosis.

#### INSTRUCTIONS TO INSPECTOR.

\* If delivered personally, strike out the words "left at the last and usual place of abode of." If left at the house, strike out the words "delivered in hand to." In either case write in the name of the person in full.

† If such person be the owner, strike out the words "the person in charge"; otherwise, strike out the words "to me personally known to be the owner."

‡ If the order of quarantine is posted by you, strike out all the words beginning "I delivered in hand to," etc., up to the words "I posted upon the within-mentioned," etc.; otherwise, strike out the words "I posted upon the within-mentioned           , being the premises where said animals are quarantined."

I have this day examined the said animal and am satisfied that it is affected with said disease of tuberculosis, which is a contagious disease under the law, and that the public good requires that the animal be killed forthwith. After the value of the said animal has been determined, by agreement between the owner and this Commissioner or by arbitration, as appears by the writing hereto affixed, you will cause said animal to be destroyed in your presence with all possible despatch, and you will cause the carcass to be inspected by \_\_\_\_\_, who is hereby appointed for that purpose, and thereafter you will dispose of the carcass of the same as follows:

You will also cause the premises where said animal has been kept to be cleansed and disinfected.

When you have completed your work as above directed, you will return this order, together with the return hereto appended as to the valuation and ownership of said animal, with a return of your doings thereon, to this office.

*Commissioner.*

Town or city of \_\_\_\_\_, 189 .  
I, \_\_\_\_\_, of \_\_\_\_\_ Street, hereby certify that on the  
day of \_\_\_\_\_, being the day when the above-described  
\_\_\_\_\_ was ordered to be killed by the duly appointed Cattle Commis-  
sioner, I was the sole and only owner of the said \_\_\_\_\_; that to my  
own actual knowledge the said animal has been within the State of  
Massachusetts six months continuously prior to its being killed, the same  
having been owned by me for \_\_\_\_\_. I further certify that I have not  
wilfully concealed the existenee of tuberculosis, or by act or wilful  
neglect contributed to spread such disease.

COMMONWEALTH OF MASSACHUSETTS.

ss.

189 .

Town or city of \_\_\_\_\_.

Then personally appeared the above-named \_\_\_\_\_, to me person-  
ally known to be the person signing the same, and made oath that the  
foregoing statement by him subscribed is true.

Before me,

*Justice of the Peace.*

I, \_\_\_\_\_, of \_\_\_\_\_, hereby certify that I am personally ac-  
quainted with the above-named \_\_\_\_\_, and that I know the above-  
named animal \_\_\_\_\_ and that \_\_\_\_\_ has owned the said animal  
for \_\_\_\_\_ months continuously prior to the above order of killing; and  
that to the best of my knowledge and belief he has not wilfully concealed  
the existence of tuberculosis, or by act or wilful neglect contributed to  
the spread of such disease.

## AGREEMENT FOR VALUE.

We, the owners of the above-mentioned \_\_\_\_\_, ordered to be killed as affected with tuberculosis, and \_\_\_\_\_, the Cattle Commissioner condemning the said animal to be killed, hereby agree that the value of the said animal at the time of slaughter, for food or milk purposes, and without taking into consideration the existence of tuberculosis, is \$ \_\_\_\_\_.

*Owner.*

*Commissioner.*

---

## ARBITRATION.

I, the Commissioner condemning the above-mentioned \_\_\_\_\_ to be killed as affected with tuberculosis, hereby select \_\_\_\_\_ of \_\_\_\_\_ as one of the arbitrators to value the said animal, as by law required.

*Commissioner.*

---

I, \_\_\_\_\_, owner of the above-mentioned \_\_\_\_\_ ordered to be killed as affected with tuberculosis, hereby select \_\_\_\_\_ of \_\_\_\_\_ as one of the arbitrators to value the said animal, as by law required.

*Owner.*

---

We, \_\_\_\_\_ and \_\_\_\_\_, being the two above-selected arbitrators, hereby select \_\_\_\_\_ of \_\_\_\_\_ as the third arbitrator to value the said animal, as by law required.

## COMMONWEALTH OF MASSACHUSETTS.

ss. Town or city of \_\_\_\_\_, 189 .

Then personally appeared the above-named three arbitrators \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_, and made oath that they would faithfully and impartially discharge their duties as said arbitrators, and value the said animal in conformity with the law.

Before me,

*Justice of the Peace.*

---

189 .

We, being the duly selected arbitrators to determine the value of the condemned animal, having been duly sworn, upon oath return that in our opinion the value of said animal on the \_\_\_\_\_ day of \_\_\_\_\_, being the day of slaughter, for food or milk purposes, and without taking into consideration the existence of tuberculosis, was \$ \_\_\_\_\_.

RETURN OF KILLING.

Town or city of \_\_\_\_\_, 189 .  
On the \_\_\_\_\_ day of \_\_\_\_\_, at \_\_\_\_\_ o'clock in the  
noon, I caused to be killed in my presence the within-named \_\_\_\_\_,  
and after the same had been killed I caused the same to be inspected by \_\_\_\_\_,  
and thereafter disposed of the said carcass as follows :

Expense of killing and burial . . . \$	
Arbitrators . . . . .	
Magistrate . . . . .	
Total . . . . .	\$

Inspector.

RETURN OF POST-MORTEM.

189 .

I inspected the above-described animal after the same had been  
siahughtered, and upon such inspection I found as follows :  
In my opinion the animal was affected with the disease of

Form No. 5.

COMMONWEALTH OF MASSACHUSETTS.  
BOARD OF CATTLE COMMISSIONERS.

ORDER FOR KILLING ANIMALS OTHER THAN TUBERCULOUS  
CATTLE.

(CHAPTER 491, ACTS OF 1894.)

189 .

To \_\_\_\_\_, Inspector for the Town or City of \_\_\_\_\_,—  
The \_\_\_\_\_ now in quarantine upon the premises of Mr.  
said to belong to \_\_\_\_\_ was reported to this Board as having  
a contagious disease.

I have this day examined the said animal and am satisfied that it is  
affected with the disease known as \_\_\_\_\_, which is a contagious  
disease under the law, and that the public good requires that the animal  
be killed forthwith. You are therefore ordered and directed to cause  
said animal to be destroyed in your presence immediately, and you will  
cause the carcass to be inspected by \_\_\_\_\_, who is hereby appointed  
for that purpose. You will then cause the same to be disposed of as  
follows : \_\_\_\_\_. You will also cause the premises where the  
animal has been kept to be properly cleansed and disinfected. As soon  
as you have performed the above duties, you will return this order, to-  
gether with a return, upon the back thereof, of your doings thereunder,  
to this office.

Commissioner.

## RETURN OF KILLING.

Town or city of \_\_\_\_\_, 189 .

On the \_\_\_\_\_ day of \_\_\_\_\_, at \_\_\_\_\_ o'clock in the noon, I caused to be killed in my presence the within-named \_\_\_\_\_, and after the same had been killed I caused the same to be inspected by \_\_\_\_\_ and thereafter disposed of the said carcass as follows :

Expense of killing and burial, \_\_\_\_\_ .

*Inspector.*

189 .

I inspected the above-described animal after the same had been slaughtered, and upon such inspection I found as follows : \_\_\_\_\_ .

In my opinion the animal was affected with the disease of \_\_\_\_\_ .

*Form No. 6.*

## RETURNS OF INSPECTIONS OF SLAUGHTERED ANIMALS.

(SECTION 5 OF CHAPTER 491 OF THE ACTS OF 1894.)

Town or city of \_\_\_\_\_, month, \_\_\_\_\_, day, \_\_\_\_\_, 189 .

Since the \_\_\_\_\_ day of \_\_\_\_\_ I have made the following inspections:—

Carcasses slaughtered at licensed slaughter houses, \_\_\_\_\_ .

Carcasses slaughtered by other persons, under Sect. 21, \_\_\_\_\_ .

I found \_\_\_\_\_ free from contagious disease ; \_\_\_\_\_ tuberculous ; \_\_\_\_\_ affected with other contagious diseases, as follows :

Owned or in the possession of \_\_\_\_\_ ,

Disposed of as follows: \_\_\_\_\_ .

Remarks :

*Inspector.*

*To be filled out and sent to 52 Village Street, Boston, once a month.*

*Form No. 9.*

## APPLICATION FOR LICENSE TO SLAUGHTER CATTLE.

(UNDER THE PROVISIONS OF THE ACTS OF THE YEAR 1894, CHAPTER 491, SECTION 17.)

Town or city of \_\_\_\_\_, 189 .

I, \_\_\_\_\_, of \_\_\_\_\_, hereby make application for a license for myself and \_\_\_\_\_ of \_\_\_\_\_, of \_\_\_\_\_, of \_\_\_\_\_ to carry on the business of slaughtering cattle (including calves) within the limits of the town (or city) of \_\_\_\_\_, for the year ending April 30, 189 .



In support of this application I state the following facts:—

The names in full and addresses of all owners and persons carrying on said business are: \*—

NAMES.

ADDRESSES.

The slaughter house or premises where the business is to be conducted is located at No. \_\_\_\_\_ Street, in the town (or city) of \_\_\_\_\_, and consists of \_\_\_\_\_.

The business to be carried on thereat and the products thereof to be sold or used for food are † \_\_\_\_\_.

The estimated number of cattle to be slaughtered thereat per week are \_\_\_\_\_ cattle, \_\_\_\_\_ calves.

I (or we) intend to slaughter cattle at the said establishment on the following-named days, and at the designated times of day in each week: \_\_\_\_\_; and I further certify that the above-designated days and times of days are selected in good faith, and that, in my judgment, it is necessary to slaughter on as many days and at the times above set forth in order to properly carry on the business to be conducted at said establishment.

*Applicant.*

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COMMONWEALTH OF MASSACHUSETTS.

ss.

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Then personally appeared the above-named \_\_\_\_\_ and made oath that the foregoing statements by him subscribed are true, except such matters as are stated upon estimation, and as to those, that they are true to the best of his knowledge and belief.

Before me,

*Justice of the Peace.*

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LICENSE TO SLAUGHTER.

Town or city of \_\_\_\_\_,

189 .

In accordance with an application duly made, of which the above is a true copy, \_\_\_\_\_, of \_\_\_\_\_, and \_\_\_\_\_, is (are) hereby licensed to carry on the business of slaughtering cattle within the limits of this city (or town) for the year ending April 30, 189 , unless this license is sooner forfeited or rendered void, upon the days, times, and conditions, and at the premises described in said application.

NOTE.—INSTRUCTIONS TO CITIES AND TOWNS. Applications are to be made in duplicate, and, if granted, one copy is to be returned to the applicant; the other retained by the Board granting the license.

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\*State in each case whether the persons named are the owners of the premises or are the persons engaged in the business.

†State whether the product is to be sold as sides of beef, or carcasses of veal, or whether it is to be cut, and if so, to what extent. If it or any part of it is to be sold as chopped beef or as sausages, state the fact.

## COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,  
SECRETARY'S OFFICE, 50 VILLAGE STREET, Aug. 22, 1894.

*To the Mayor and Aldermen of Cities and the Selectmen of Towns,—*

GENTLEMEN: We desire to call your attention to the following *order*, which was made at a meeting held this day:—

*Order No. 2.*

Under authority given us, in Sect. 39, Chap. 491 of the Acts of 1894, it is hereby *ordered* that the appointment of butchers as inspectors of meat and carcasses, in their own slaughter houses, cannot be allowed.

LEVI STOCKBRIDGE,  
MAURICE O'CONNELL, D. V. S.,  
FREDERICK H. OSGOOD, M. R. C. V. S.,  
LEANDER F. HERRICK,  
CHARLES P. LYMAN, F. R. C. V. S.,  
*Board of Cattle Commissioners.*

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## COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,  
52 VILLAGE STREET, BOSTON, Nov. 20, 1894.

*To whom it may concern,—*

The development and spread of tuberculosis among animals have assumed such proportions and constitute so great a menace to the health of the community that the Board of Cattle Commissioners have determined to adopt a fixed policy for the eradication of the disease, in general terms as follows:—

*First.* Quarantine regulations upon cattle entering from without the borders of the Commonwealth.

*Second.* Regulation of cattle traffic at Brighton, Watertown, and Somerville, which shall include all animals from within and without the Commonwealth.

*Third.* Systematic inspection of all herds in the State, beginning at the Cape; followed by extermination of diseased animals, disinfection of contaminated premises, and fixed quarantine regulations.

Careful investigations conducted by the Board in the use of tuberculin enable them to conscientiously add their endorsement to that of all careful investigators who have experimented with it since its discovery in 1891, who agree:—

*First.* That tuberculin is a reliable agent for determining the presence of tuberculosis in cattle.

*Second.* That tuberculin properly prepared and carefully handled can have no injurious effect upon healthy animals.

*Third.* That it is the only known means whereby a positive diagnosis can be made in the early stages of the disease.

In consideration of the above-stated facts, all the herds in the State will be systematically examined and subjected to the tuberculin test ; and for the efficient work of eradicating the disease it is essential that every tuberculous animal in whatever stage shall be found and destroyed.

The extermination of the disease from a given herd must be followed by thorough disinfection of contaminated buildings and the careful exclusion of the herd from new sources of infection, each district to remain under quarantine regulations till the State is covered. Such regulations shall allow the entrance or exit of all animals which, after being tested, have been branded with the seal of the Commission, or until otherwise ordered by the Board.

The cost to the State will be more than repaid in dollars and cents from the increased demand and value of the products derived from this source. Sanitarians, as well as all other intelligent people throughout the United States, look to Massachusetts as a State always at the front in all matters of public health and welfare.

The importance of the subject is abundantly demonstrated. The dairy-men throughout our Eastern States, experienced as all of them are with tuberculosis, are watching and waiting for a market where they can go and be assured of purchasing animals free from tuberculosis.

Every intelligent, thinking man in New England to-day is asking himself the question, "Where can I procure my milk, butter, and cheese with the absolute knowledge that I am not giving to my family the germs of consumption?"

The Commission believe it useless to kill animals found in the State affected with this disease, without so regulating the traffic as to prevent the entrance of diseased animals from without, and having knowledge of the fact that under existing conditions animals affected with the disease are being constantly brought into our State and sold to our farmers, butchers, and dairymen, thereby disseminating the contagion. The Commission realizing at the same time the importance of the cattle industry in this Commonwealth, have been impelled to adopt the regulation described hereafter, believing that it will not unfavorably affect honest interstate traffic in cattle ; that it will so materially increase the value of sound animals, which alone can be sold in Massachusetts, as to more than compensate owners for the loss sustained by seizure of those affected with tuberculosis.

The Commission, having thus set forth the reason for their action, hope to enlist the cordial sympathy and co-operation of the community, whose vital interests are so much involved in the eradication of tuberculosis from our neat cattle.

During the past year, the Legislature of this Commonwealth passed an act codifying and extending the law in relation to contagious disease among domestic animals, being Chap. 491 of the Acts of 1894, and the Commission desires to call especial attention in this connection to Sects. 37, 38, 39, 40, 45, 53, 34, and 47.

Now, therefore, the Board of Cattle Commissioners, by virtue of the power and authority conferred upon them by law, and especially by the

sections above mentioned, and for the purpose of accomplishing the objects herein stated, have adopted the following order for the purpose of regulating the importation of cattle within this State and the quarantine and examination thereof: —

COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,

52 VILLAGE STREET, BOSTON, NOV. 20, 1894.

*General Order No. 3.*

*First.* All the States and Territories of the United States, the District of Columbia, Canada, Great Britain, and all other localities without the limits of this Commonwealth, are hereby declared infected districts.

*Second.* It is hereby ordered that all neat cattle brought within the limits of this Commonwealth from any of said localities on or after Nov. 26, 1894, are hereby made subject to quarantine until they have been inspected and released by this Board or one of its members thereto duly authorized.

*Third.* Except as hereinafter provided, no such neat cattle shall be unloaded, except in case of accident, for any purpose whatsoever within this Commonwealth, at any place or places other than at such quarantine stations as are herein designated, or which may hereafter from time to time be designated by this Board, unless upon written permit signed by the Board of Cattle Commissioners or one of its members.

*Fourth.* The Union stock yards at Watertown, the Boston & Albany stock yards at Brighton, and the premises of the New England Dressed Beef and Wool Company in Somerville are hereby designated as quarantine stations.

*Fifth.* All neat cattle entered at any quarantine station, except as hereinafter provided, are hereby declared quarantined, and shall so remain, at the expense of the owner or consignee, for a period of not less than twenty-four hours, or until they are released by the Board of Cattle Commissioners or one of its members, during which time they shall be subjected to the tuberculin test. This test shall be made only by the Board of Cattle Commissioners or one of its members, or a duly authorized agent thereof, and without expense to the owner.

*Sixth.* Every such animal which, in the opinion of this Board or any of its members, is affected with tuberculosis, will be condemned and slaughtered as provided in Sects. 45 and 53 of said Chap. 491 of the Acts of 1894.

*Seventh.* All animals which upon such inspection shall be adjudged free from tuberculosis and other contagious diseases shall be branded with the seal of the Commission. This brand will be placed upon the right hip; and all neat cattle so branded shall be free to all markets in this Commonwealth.

*Eighth.* All neat cattle passing through this Commonwealth, consigned from points without its limits, for exportation from this State will not be examined as herein provided, but such animals shall remain in quarantine until transported without the limits of the Commonwealth.

*Ninth.* All neat cattle brought within this Commonwealth, consigned directly to the Brighton Abattoir for slaughter, shall be confined by themselves for identification, and shall not be released except after an examination as above provided, or for immediate slaughter.

*Tenth.* It shall be the duty of every person or persons, corporation or corporations, desiring to drive or cause to be driven any neat cattle into this State from any point without its limits, to notify in writing the Board of Cattle Commissioners of his, their, or its intention so to do, which notice shall state the town or city within this Commonwealth through which it is the intention to enter, and the time when the drove will arrive within such city or town. After crossing the border, all such cattle are hereby declared quarantined upon premises which shall be defined in the permit, within the limits of such city or town, at the expense of the owner or consignee, and shall there remain until they have been examined, and released or condemned by this Board or one of its members. No neat cattle shall be driven within this State from any point without its limits, except as herein provided.

*Eleventh.* No person shall sell or offer for sale, or have in his possession, except under quarantine, within the stock yards in Brighton, Watertown, or Somerville, any neat cattle which are not branded as provided for in Sect. 7, except as provided in Sects. 8 and 9 of this order.

*Twelfth.* It is further ordered that a copy of this order shall be sent to each city and town throughout the Commonwealth, and that every town shall cause a copy thereof to be posted in two or more conspicuous places within its limits, and shall cause a copy of the same to be published once a week for three successive weeks in a newspaper published therein, or if no newspaper be published within the limits of said town, then in a newspaper published within said county; and that each such city shall cause a copy of the same to be published twice a week for three successive weeks in a newspaper published within its limits.

*Thirteenth.* This order shall take effect upon Nov. 26, 1894.

FREDERICK H. OSGOOD, *Chairman*,  
CHARLES P. LYMAN, *Secretary*,  
MAURICE O'CONNELL,  
LEANDER F. HERRICK,  
CHARLES A. DENNEN,

*Board of Cattle Commissioners.*

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COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,

52 VILLAGE STREET, BOSTON, Nov. 20, 1894.

*To the Managers and Agents of all Railroads whose lines or routes enter or lie within the Commonwealth of Massachusetts, —*

By virtue of the power and authority in us vested by law, and especially under Sects. 24, 34, 38, 47, and 53 of Chap. 491 of the Acts of the year 1894, you are hereby notified that tuberculosis, which is a conta-

gious disease and is so recognized under the laws of this Commonwealth, exists among cattle of the several States and Territories of the United States, the District of Columbia, and Canada, and such localities are, in the opinion of this Board, infected districts.

Your attention is called to General Order No. 3, issued by this Board under date of Nov. 20, 1894, and you are hereby further notified that in order to prevent the importation of diseased animals, and as a means of suppressing such disease within this Commonwealth, this Board has passed the following order :—

#### COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,

52 VILLAGE STREET, BOSTON, Nov. 20, 1894.

*General Order No. 4.*

*First.* No neat cattle brought within the limits of this Commonwealth from any State or Territory of the United States, the District of Columbia, or Canada shall be unloaded, except in case of accident, for any purpose whatsoever, within this Commonwealth at any place or places other than at such quarantine stations as may from time to time be designated by this Board, except upon a written permit signed by the Board of Cattle Commissioners or one of its members.

*Second.* The Boston & Albany stock yards in Brighton, the Union stock yards in Watertown, and the premises of the New England Dressed Beef and Wool Company in Somerville are hereby designated as quarantine stations.

*Third.* All neat cattle brought within the limits of any of said quarantine stations are hereby declared quarantined.

*Fourth.* This order shall take effect on Nov. 26, 1894.

FREDERICK H. OSGOOD, *Chairman*,  
CHARLES P. LYMAN, *Secretary*,  
MAURICE O'CONNELL,  
LEANDER F. HERRICK,  
CHARLES A. DENNEN,

*Board of Cattle Commissioners.*

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#### COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,

52 VILLAGE STREET, BOSTON, Nov. 20, 1894.

*To the Boards of Health and all Owners of Neat Cattle in the Counties of Nantucket, Dukes, and Barnstable,—*

The development and spread of tuberculosis among animals have assumed such proportions and constitute so great a menace to the health of the community that the Board of Cattle Commissioners have determined to adopt a fixed policy for its eradication from our neat cattle; and your especial attention is hereby called to Sects. 37, 38, 24, 39, 40, 45, 46, 34, and 47 of Chap. 491 of the Acts of 1894.

Under the provisions of this act, and as a part of a general plan for exterminating the disease in the State, the Board proposes to undertake a systematic inspection of all herds in the State, by districts hereafter to be designated, beginning at Cape Cod with a district comprising the counties of Nantucket, Dukes, and Barnstable.

The plan of operation will be the examination of all cattle in the district by the tuberculin test, followed by the extermination of all diseased animals, disinfection of contaminated premises, and fixed quarantine regulations.

The extermination of the disease from a given herd must be followed by thorough disinfection of contaminated buildings and the careful exclusion of the herd from new sources of infection. Each district is to remain under quarantine regulations until the whole State is covered. Regulations will be made to allow the entrance or exit of all animals which, after being tested, have been branded with the seal of the Commission.

It is believed that the cost to the individual of carrying out the regulations hereinafter set forth will be more than repaid by the security afforded him in purchasing cattle, and by the increased demand for, and value of, the products derived therefrom, without considering the removal of this source of danger to the health of himself and family.

When the fact is taken into consideration that the average ratio of deaths from tuberculosis in the human family is fourteen per cent, or one death in eight of the total mortality, and that tuberculosis is a preventable disease, the importance of the subject will be fully appreciated.

Having thus briefly set forth some of the reasons for their action, and hoping to enlist the cordial sympathy and co-operation of the community whose vital interests are so much involved in the eradication of tuberculosis in our neat cattle, the Board of Cattle Commissioners hereby promulgate the following order:—

#### COMMONWEALTH OF MASSACHUSETTS.

BOARD OF CATTLE COMMISSIONERS,

52 VILLAGE STREET, BOSTON, Nov. 20, 1894.

*General Order No. 5.*

Under and by virtue of authority in us vested by law, and especially under Sects. 24, 38, and 39 of Chap. 491 of the Acts of the year 1894, you are hereby notified that in the opinion of this Board all neat cattle throughout said counties have been exposed to tuberculosis, a contagious disease under said act, and that in order to suppress and prevent the spread or further introduction of said disease it is necessary that all such cattle should be quarantined and tested with tuberculin. Therefore the following regulations have been adopted:—

*First.* From Nov. 25, 1894, until such time as they shall have been released by this Board or one of its members, all neat cattle in Nantucket County are hereby ordered quarantined upon the premises of their owners.

*Second.* After Nov. 25, no neat cattle (including calves) will be

allowed to enter said county unless such neat cattle have been branded with the seal of the Commission.

*Third.* All neat cattle within such limits will be subjected to the tuberculin test. This test shall be made only by the Board of Cattle Commissioners or one of its members, or a duly authorized agent thereof.

*Fourth.* Every such animal, which in the opinion of this Board or any of its members is affected with tuberculosis, will be condemned and killed, and such compensation will be paid therefor as is provided in Sect. 45 of said Chap. 491 of the Acts of 1894.

*Fifth.* All animals which shall be adjudged free from tuberculosis and other contagious diseases will be branded with said seal.

*Sixth.* All neat cattle branded as herein specified shall be free to all markets in this Commonwealth.

*Seventh.* All premises upon which tuberculous animals have been discovered shall be thoroughly disinfected as directed by this Board.

*Eighth.* It is further ordered that a copy of this order shall be sent to each town in the counties of Nantucket, Dukes, and Barnstable, and shall be published by each town therein, by causing a copy thereof to be posted in some conspicuous place within its limits, and by publishing a copy thereof once a week for three successive weeks in a newspaper published in said town, or if there is no such paper published therein, then in a newspaper published within the county within which said town is situated.

*Ninth.* Boards of Health will see that all orders of this Board regarding the disinfection of premises are enforced within twenty-four hours after the receipt of the same.

This order shall take effect upon the twenty-fifth day of November, 1894.

FREDERICK H. OSGOOD, *Chairman*,  
CHARLES P. LYMAN, *Secretary*,  
MAURICE O'CONNELL,  
LEANDER F. HERRICK,  
CHARLES A. DENNEN,

*Board of Cattle Commissioners.*



## TABLES SHOWING TUBERCULIN TESTS AND RESULTS.

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The following tables show the tuberculin tests, by the commission, of cattle examined by them during the past year, giving in detail the time of injection and the temperature of the animal at that time, the recorded temperature changes after injection, the action of the commission upon the test, and where the animal was condemned, the results of the post-mortem examination.

These tables have been divided into the following heads:—

*Quarantines issued by Local Inspectors*, being the record of examination by tuberculin of animals suspected as being tuberculous, reported by local inspectors to this Board.

*Other Herds*, being sundry examinations of herds throughout the State.

*Brighton, Watertown and Somerville*, being the record of the examination of all animals brought into the Brighton, Watertown and Somerville markets for sale.

*Nantucket*, being the record of the examination of all neat cattle within the island of Nantucket under the order of November 20.









*Quarantines issued by Local Inspectors — Continued.*

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.																	Result.	Post-mortem Results.		
	Date.	Hour.	Temperature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.			12 M.	
Ipswich, . . .	Dec. 21,	10 P.M.	99.3	-	-	-	100.3	-	101.2	-	102.1	-	102	-	102.4	-	102.4	-	102.4	-	102	-	Released.	-
East Longmeadow, . . .	Dec. 7,	"	102.1	-	-	-	101.3	-	102.3	-	101.3	-	101.3	-	101.4	-	102	-	102	-	102	-	"	-
Dracut, . . .	Dec. 11,	6 P.M.	102	-	-	-	101	-	102	-	102	-	102	-	101.3	-	101	-	101	-	101.1	-	"	-
East Bridgewater, . . .	Dec. 6,	10 P.M.	102.4	-	-	-	102.2	-	102.1	-	103.3	-	102.2	-	102.4	-	102.2	-	102.2	-	102.2	-	"	-
" " . . .	Nov. 18,	6 P.M.	101.1	-	-	-	-	-	102.1	-	103.2	-	103.1	-	102.4	-	102.2	-	102.2	-	102.2	-	"	-
" " . . .	Dec. 6,	10 P.M.	102.2	-	-	-	-	-	102.1	-	102.2	-	103.1	-	102.2	-	102.2	-	102.2	-	102.2	-	"	-
Natick, . . .	Nov. 19,	6 P.M.	102.1	-	-	-	103.4	103.1	103.2	-	102.2	-	103.1	-	102.2	-	102.2	-	102.2	-	102.2	-	"	-
" " . . .	" "	"	102.1	-	-	-	106.2	-	103.2	-	103.2	-	106.1	-	105	-	101.4	-	101.4	-	101.4	-	Condemned.	-
" " . . .	" "	"	100.1	-	-	-	100.4	-	101.3	-	102	-	101.3	-	102	-	101.3	-	101.3	-	101.3	-	Released.	-
Needham, . . .	Nov. 26,	"	102.1	-	-	-	101.3	102.3	102.3	-	102.3	-	102.3	-	102.1	-	102.1	-	102.1	-	102.1	-	"	-
North Cohasset, . . .	Nov. 25,	"	102.1	-	-	-	102	102.2	102	-	102	-	102	-	101.4	-	101.4	-	101.4	-	101.4	-	"	-
" " . . .	" "	"	102.2	-	-	-	102.4	102	102	-	102	-	102	-	101.4	-	101.4	-	101.4	-	101.4	-	"	-
" " . . .	Dec. 17,	{ 6 P.M. 101.3 4 A.M. 101.4 }	102.1	-	-	-	102.3	102.3	102.1	-	102.1	-	102.1	-	102.3	-	102.3	-	102.3	-	102.3	-	"	-
Newton, . . .	Nov. 25,	6 P.M.	101.3	-	-	-	101.3	102	101.4	-	102.2	-	102.2	-	102.2	-	102.1	-	102.1	-	102.1	-	"	-
" " . . .	" "	"	102.1	-	-	-	103	103	102.1	-	102.1	-	102.1	-	102.1	-	102.2	-	102.2	-	102.2	-	"	-
" " . . .	" "	"	102.2	-	-	-	101	101	101.1	-	102.1	-	102.1	-	102.1	-	102.1	-	102.1	-	102.1	-	"	-
" " . . .	" "	"	101	-	-	-	101.4	102.4	103.2	-	103.3	-	103	-	103	-	102	-	102	-	102	-	Retest.	-
" " . . .	" "	"	102.1	-	-	-	101.3	102	103	-	103.1	-	100	-	102.2	-	102.2	-	102.2	-	102.2	-	Released.	-
" " . . .	" "	"	101.3	-	-	-	101.3	101.3	101.3	-	102.2	-	103.1	-	103.1	-	103.1	-	103.1	-	103.1	-	"	-
" " . . .	" "	"	102	-	-	-	102	102.4	102.4	-	103.1	-	103.1	-	102	-	102.2	-	102.2	-	102.2	-	"	-
" " . . .	" "	"	102.1	-	-	-	102.1	102	102.2	-	102.1	-	102	-	102.1	-	102.1	-	102.1	-	102.1	-	"	-
" " . . .	" "	"	100.3	-	-	-	101.1	101.1	102	-	102.1	-	102	-	102	-	102	-	102	-	102	-	"	-
" " . . .	" "	"	101.1	-	-	-	101.1	101.1	101.1	-	102.1	-	102.2	-	102.2	-	102.2	-	102.2	-	102.2	-	"	-
" " . . .	" "	"	101.1	-	-	-	100.4	100.4	101.3	-	102	-	102.1	-	101.4	-	101.2	-	101.2	-	101.2	-	"	-
" " . . .	" "	"	101.3	-	-	-	101.4	101.4	102	-	102.1	-	102.1	-	101.4	-	101.2	-	101.2	-	101.2	-	"	-
" " . . .	" "	"	101	-	-	-	101.1	101.1	101.1	-	101.4	-	101.4	-	101.4	-	101.4	-	101.4	-	101.4	-	"	-
" " . . .	" "	"	101.3	-	-	-	101.3	101.3	101.3	-	102.1	-	102.1	-	102.1	-	102.1	-	102.1	-	102.1	-	"	-
" " . . .	" "	"	101.3	-	-	-	101.3	101.3	101.3	-	102.1	-	102.1	-	102.1	-	102.1	-	102.1	-	102.1	-	"	-
North Andover, . . .	Dec. 6,	10 P.M.	101.1	-	-	-	101.1	101.1	101.1	-	102.1	-	102.3	-	103	-	102.3	-	102.3	-	102.3	-	"	-
" " . . .	Dec. 5,	"	101.1	-	-	-	101.1	101.1	101.1	-	102	-	102.2	-	103	-	103	-	103	-	103	-	"	-
" " . . .	" "	"	101.3	-	-	-	102.2	102.2	102.2	-	102.2	-	102.2	-	101.4	-	101.4	-	101.4	-	101.4	-	"	-
" " . . .	" "	"	101.1	-	-	-	102	102	102	-	102.2	-	102.2	-	102	-	102	-	102	-	102	-	"	-

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*Quarantines issued by Local Inspectors — Continued.*

[illegible]







Place.	Date.	Time.	Lat.	Long.	Alt.	Wind.	Temp.	Humid.	Bar.	Remarks.
Chelmsford,	"	10 P.M.	102	104.4	107					"
"	"	"	100.4	105.4	106.2					"
"	"	6 P.M.	100.3	106.3	105.3					"
"	"	10 P.M.	101.2	103.1	105.2					"
"	"	"	101.1	104.2	105.2					"
"	"	"	102.1	104.4	105.3					"
"	"	"	103	105	104					"
Nov. 11,	"	6 P.M.	103	103.4	104					"
"	"	"	102.1	104	101.3					"
"	"	"	102.2	102	103					"
"	"	"	101	102	103.2					"
"	"	"	102.3	103.2	103.2					"
"	"	"	101	102	103.2					"
"	"	"	102.1	102	101.2					"
"	"	"	100.1	101.4	105.3					"
10 P.M.	"	100.4	101.4	105.3	103.2					"
6 P.M.	"	100.3	101.4	105.4	103.2					"
Nov. 11,	"	"	101.4	103.4	104.2					"
"	"	"	101.2	103.4	104.2					"
Nov. 3,	"	"	101.2	103.4	104.2					"
Nov. 25,	"	10 P.M.	101.3	103	104.2					"
"	"	"	101	102.4	104.4					"
Southborough,	"	Dec. 21,	102.1	102.2	103					"
Hubbardston,	"	6 P.M.	101	104.4	105.1					"
"	"	"	101.2	104	104.4					"
"	"	"	100.4	102.3	104.4					"
"	"	"	101.4	105	104.1					"
"	"	"	102.3	106.4	105.3					"
Nov. 26,	"	"	96.1	99.4	103.3					"
"	"	"	99	102	105.1					"
Dec. 3,	"	10 P.M.	101	105.2	105.2					"
"	"	6 P.M.	99	103.2	102.3					"
"	"	"	100	103.2	102.3					"
Nov. 15,	"	"	101.4	102.2	103.1					"
Holland,	"	10 P.M.	100.5	102.5	102.3					"
Boston, Jamaica Plain,	"	Oct. 26,	102.3	103	102.8					"
"	"	"	102	103.2	103.2					"
"	"	"	102	103.2	103.2					"
Boston,	"	"	102.3	102.5	102.8					"
"	"	"	100.5	101.5	102.3					"
"	"	"	99.4	101.2	104.1					"
Springfield,	"	Nov. 26,	101.3	103.2	104.3					"
"	"	"	103.4	105.1	104.2					"
Lowell,	"	Nov. 17,	100.3	100.2	100.1					"
Adlow,	"	Nov. 26,	100.3	103.2	105.1					"
Springfield,	"	10 P.M.	100.3	105	105.1					"
Leonister,	"	6 P.M.	102.4	106	105.2					"
"	"	"	101	105.4	104.2					"
"	"	"	101	101.1	101.3					"

### 1. Ribs and stomach.











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2 Temperatures after injection, 1 A.M., 102.1; 3 A.M., 101.4.

Temperature after initiation	3 A M	102°	4 A M	101.1°	6 A M	101.4°
100°	0.00	0.00	0.00	0.00	0.00	0.00
101°	0.00	0.00	0.00	0.00	0.00	0.00
102°	0.00	0.00	0.00	0.00	0.00	0.00
103°	0.00	0.00	0.00	0.00	0.00	0.00
104°	0.00	0.00	0.00	0.00	0.00	0.00
105°	0.00	0.00	0.00	0.00	0.00	0.00
106°	0.00	0.00	0.00	0.00	0.00	0.00
107°	0.00	0.00	0.00	0.00	0.00	0.00
108°	0.00	0.00	0.00	0.00	0.00	0.00
109°	0.00	0.00	0.00	0.00	0.00	0.00
110°	0.00	0.00	0.00	0.00	0.00	0.00
111°	0.00	0.00	0.00	0.00	0.00	0.00
112°	0.00	0.00	0.00	0.00	0.00	0.00
113°	0.00	0.00	0.00	0.00	0.00	0.00
114°	0.00	0.00	0.00	0.00	0.00	0.00
115°	0.00	0.00	0.00	0.00	0.00	0.00
116°	0.00	0.00	0.00	0.00	0.00	0.00
117°	0.00	0.00	0.00	0.00	0.00	0.00
118°	0.00	0.00	0.00	0.00	0.00	0.00
119°	0.00	0.00	0.00	0.00	0.00	0.00
120°	0.00	0.00	0.00	0.00	0.00	0.00
121°	0.00	0.00	0.00	0.00	0.00	0.00
122°	0.00	0.00	0.00	0.00	0.00	0.00
123°	0.00	0.00	0.00	0.00	0.00	0.00
124°	0.00	0.00	0.00	0.00	0.00	0.00
125°	0.00	0.00	0.00	0.00	0.00	0.00
126°	0.00	0.00	0.00	0.00	0.00	0.00
127°	0.00	0.00	0.00	0.00	0.00	0.00
128°	0.00	0.00	0.00	0.00	0.00	0.00
129°	0.00	0.00	0.00	0.00	0.00	0.00
130°	0.00	0.00	0.00	0.00	0.00	0.00
131°	0.00	0.00	0.00	0.00	0.00	0.00
132°	0.00	0.00	0.00	0.00	0.00	0.00
133°	0.00	0.00	0.00	0.00	0.00	0.00
134°	0.00	0.00	0.00	0.00	0.00	0.00
135°	0.00	0.00	0.00	0.00	0.00	0.00
136°	0.00	0.00	0.00	0.00	0.00	0.00
137°	0.00	0.00	0.00	0.00	0.00	0.00
138°	0.00	0.00	0.00	0.00	0.00	0.00
139°	0.00	0.00	0.00	0.00	0.00	0.00
140°	0.00	0.00	0.00	0.00	0.00	0.00
141°	0.00	0.00	0.00	0.00	0.00	0.00
142°	0.00	0.00	0.00	0.00	0.00	0.00
143°	0.00	0.00	0.00	0.00	0.00	0.00
144°	0.00	0.00	0.00	0.00	0.00	0.00
145°	0.00	0.00	0.00	0.00	0.00	0.00
146°	0.00	0.00	0.00	0.00	0.00	0.00
147°	0.00	0.00	0.00	0.00	0.00	0.00
148°	0.00	0.00	0.00	0.00	0.00	0.00
149°	0.00	0.00	0.00	0.00	0.00	0.00
150°	0.00	0.00	0.00	0.00	0.00	0.00
151°	0.00	0.00	0.00	0.00	0.00	0.00











*Quarantines issued by Local Inspectors—Continued.*

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.												Result.	Post-mortem Lesions.					
	Date.	Hour.	Tem- per- ature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.			6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.
Hampden, . . .	Dec. 26,		{ 6 P.M. 100.4 } { 12 M. 100 }	100.3	-	101.4	-	101.4	-	-	101.2	-	-	-	-	-	-	-	-	-	-	Released.
" . . .	"		{ 6 P.M. 99 } { 12 M. 100 }	100.1	-	101.3	-	102	-	100	-	-	-	-	-	-	-	-	-	-	-	"
" . . .	"		{ 6 P.M. 98 } { 12 M. 99.1 }	99	-	100.4	-	100.3	-	100.1	-	-	-	-	-	-	-	-	-	-	-	"
" . . .	"		{ 6 P.M. 99 } { 12 M. 101 }	101	-	102.1	-	102.2	-	103.1	-	-	-	-	-	-	-	-	-	-	-	"
" . . .	"		{ 6 P.M. 101.1 } { 12 M. 101.4 }	101	-	102.3	-	102.4	-	102.2	-	101.4	-	-	-	-	-	-	-	-	-	"
" . . .	"		{ 6 P.M. 101 } { 12 M. 101 }	101	-	101.1	-	102.2	-	101.2	-	-	-	-	-	-	-	-	-	-	-	"
Hubbardston, . . .	Nov. 15,		{ 10 P.M. 101.3 } { 6 P.M. 100.3 }	101.3	-	101.3	-	102	-	102	-	102	102	-	-	-	-	-	-	-	-	"
" . . .	"		{ 10 P.M. 101.4 } { 6 P.M. 100.4 }	101.3	-	102	-	101.4	-	102	-	102.1	102	102	-	-	-	-	-	-	-	"
" . . .	"		{ 2 P.M. 101 } { 4 A.M. 101.2 }	101	-	101.2	-	101.3	-	101.2	-	-	-	-	-	-	-	-	-	-	-	"
Cohasset, . . .	Dec. 1,		{ 10 P.M. 100.3 } { " 100.2 }	-	-	-	-	-	-	102.2	-	-	-	101.3	-	-	-	-	-	102.1 <sup>1</sup>	-	"
Carlisle, . . .	Dec. 1,		{ 4 A.M. 101.2 } { 6 P.M. 101.1 }	101.4	-	102.1	-	100.3	-	100.2	-	100.2	-	-	-	-	-	-	-	-	-	"
" . . .	Dec. 10,		{ " 100.3 } { " 102.1 }	-	-	102	-	101.4	-	101.4	-	100.3	-	-	-	-	-	-	-	-	-	"
Northbridge, . . .	Dec. 31,		-	101.3	-	101.4	-	102.1	-	101.3	-	-	-	-	-	-	-	-	-	-	-	"
Wilmington, . . .	Dec. 14,		-	102.4	-	102	-	102.1	-	101.1	-	101.1	-	101.1	-	101.1	-	-	-	-	-	"
" . . .	Dec. 18,		{ 6 P.M. 100.1 } { " 100 }	102.2	-	102.1	-	102.1	-	101.1	-	101.1	-	102	-	101.3	-	-	-	-	-	"
Woburn, . . .	Nov. 16,		{ " 101.4 } { " 100 }	101	-	102	-	102.1	-	102	-	101.4	-	101.3	-	101.3	-	-	-	-	-	"
" . . .	"		{ " 101.2 } { " 102.2 }	101.2	-	101.4	-	102	-	101.2	-	101.2	-	101.4	-	101.4	-	-	-	-	-	"
" . . .	"		{ " 101.4 } { " 100.4 }	101	-	101.4	-	101.3	-	101.1	-	101.1	-	101.2	-	101.2	-	-	-	-	-	"
" . . .	Dec. 13,		{ 10 P.M. 100.3 } { 6 P.M. 100.4 }	101.1	-	101.4	-	101.3	-	101.4	-	101.3	-	101.4	-	101.4	-	101.3	-	-	-	Retest. <sup>3</sup> Released.
" . . .	Dec. 12,			101.1	-	-	-	-	-	-	-	101.3	-	101.2	-	102.1	-	-	-	-	-	







## Quarantines issued by Local Inspectors — Continued.

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.																	Result.	Post-mortem Lesions.	
	Date.	Hour.	Temperature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.			12 M.
Littleton, .	Dec. 20,	6 P.M.	102	101.2	-	-	102.2	-	103.1	102.3	-	-	102.1	-	-	-	-	-	-	-	-	-	Released.
" "	" "	" "	101	101.1	-	-	102.1	-	102.4	101	-	-	101	-	-	-	-	-	-	-	-	-	"
Ludlow, .	" "	2 P.M.	100	-	-	-	-	-	-	99.2	-	-	100	-	-	100.1	102	-	-	-	-	-	"
" "	" "	" "	101.1	-	-	-	-	-	-	100.3	-	-	100.3	-	-	100.4	102	-	-	-	-	-	"
" "	" "	" "	101.4	-	-	-	-	-	-	100.3	-	-	101	-	-	101.3	101.4	-	-	-	-	-	"
" "	" "	" "	102	-	-	-	-	-	-	100.4	-	-	100.4	-	-	101.4	102.2	-	-	-	-	-	"
" "	" "	" "	102	-	-	-	-	-	-	100.4	-	-	101.4	-	-	101.4	102.3	-	-	-	-	-	"
East Longmeadow, .	Nov. 26,	6 P.M.	100	101.2	-	-	102.3	-	102.2	101.4	-	-	102.3	-	-	101.1	-	-	-	-	-	-	"
Dec. 7,	10 P.M.	101	100	101.1	-	-	100.2	-	99.3	100.1	102	-	101	-	-	101.1	100	-	-	-	-	-	"
Longmeadow, .	Dec. 1,	" "	100.3	100.2	-	-	100.4	-	101.1	101	-	-	101.2	-	-	101.3	101.3	-	-	-	-	-	"
" "	Dec. 6,	" "	101.3	101	-	-	101.4	-	102.1	102.1	-	-	101	-	-	101.4	101.3	-	-	-	-	-	"
Lexington, .	" "	" "	101.4	101.4	-	-	101.4	-	101.4	101.4	-	-	101.3	-	-	101.3	101.3	-	-	-	-	-	"
Lynn, .	Dec. 20,	6 P.M.	102.1	101.2	-	-	101.4	-	101.4	101.3	-	-	101.3	-	-	101.3	101.3	-	-	-	-	-	"
" "	" "	" "	102	101.1	-	-	102.2	-	102	102.1	-	-	102.3	-	-	102.4	102.4	-	-	-	-	-	"
" "	" "	" "	101.3	101.3	-	-	102	-	102.3	102.3	-	-	103	-	-	102.1	102.1	-	-	-	-	-	"
" "	" "	" "	102	102	-	-	101.1	-	101	102.1	-	-	101.4	-	-	101.4	102	-	-	-	-	-	"
" "	" "	" "	103	102	-	-	102.1	-	101.2	101	-	-	102	-	-	102	102	-	-	-	-	-	"
" "	Dec. 7,	" "	101	101.2	-	-	102.2	-	102.2	102.2	-	-	103	-	-	102.2	102.2	-	-	-	-	-	"
" "	" "	" "	101	101.2	-	-	102.2	-	102.2	102.3	-	-	105	-	-	105	105	-	-	-	-	-	"
Stoneham, .	Nov. 14,	10 P.M.	102	105.2	-	-	107.2	-	106	106.2	-	-	106.2	-	-	106.2	102.1	-	-	-	-	-	Condemned.
" "	" "	" "	102.2	107	-	-	107	-	106.2	106.2	-	-	106.2	-	-	106.2	102.1	-	-	-	-	-	"
" "	" "	" "	102.3	105.4	-	-	105.4	-	105.4	105.1	-	-	105.1	-	-	105.1	104.2	-	-	-	-	-	"
Sharon, .	Nov. 11,	" "	101.3	105.4	-	-	105.4	-	106.3	106.2	-	-	106	-	-	105.3	105.3	-	-	-	-	-	"
" "	" "	" "	100.4	105.4	-	-	102	-	103.1	103.1	-	-	105.3	-	-	105	105	-	-	-	-	-	"
Chelmsford, .	Nov. 17,	" "	101.2	105.4	-	-	105.4	-	106.2	106.4	-	-	106.3	-	-	106.3	106.3	-	-	-	-	-	"
Needham, .	Nov. 11,	" "	101	102.1	-	-	102.4	-	104.1	105.3	-	-	106	-	-	104.2	104.3	-	-	-	-	-	"
" "	" "	" "	101.3	103.2	-	-	105	-	105.1	104.2	-	-	104.3	-	-	104.3	104.3	-	-	-	-	-	"
Ludlow, .	Nov. 26,	" "	100.3	103.2	-	-	101.2	-	104.1	104.1	-	-	104.3	-	-	104.3	104.3	-	-	-	-	-	"
" "	" "	" "	99.4	103.2	-	-	101.2	-	104.1	104.1	-	-	103.5	-	-	103.5	103.5	-	-	-	-	-	"
" "	" "	" "	102	101.5	-	-	102.5	-	103.2	102.3	-	-	103.1	-	-	103.1	102.9	-	-	-	-	-	"
Lancaster, .	Oct. 26,	" "	100.5	101.5	-	-	102.5	-	103.2	102.3	-	-	103.1	-	-	103.1	102.9	-	-	-	-	-	"



[illegible]

<sup>1</sup> Temperatures after injection, 1 A.M., 101.3; 3 A.M., 101.  
<sup>2</sup> Temperatures after injection, 1 A.M., 101.2; 3 A.M., 101.1.

1 Temperatures after injection, 1 A.M., 101.3; 3 A.M., 101.

<sup>1</sup> Temperatures after injection, 1 A.M., 101.3; 3 A.M., 101.3

<sup>2</sup> Temperatures after injection, 1 A.M., 101.2; 3 A.M., 101.1.





*Quarantines issued by Local Inspectors — Continued.*

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.																Result.	Post-mortem Lesions.		
	Date.	Hour.	Tem- per- ature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.			10 P.M.	12 M.
Miscellaneous,	Oct. 11,	8 P.M.	100.4	105	105.4	-	106.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Condemned.	
	"	"	101	104	104.4	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	"	
	Oct. 12,	9 P.M.	101.4	101	101	-	-	101	101	101	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	Released.	
	"	"	102.1	-	101.4	-	102.2	-	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	"	
	"	"	100.1	-	101.2	-	101.1	-	101.3	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	"	
	"	"	8 P.M.	98.4	100.3	-	101.1	-	101.2	-	-	-	-	-	-	-	-	-	-	-	-	"	
	"	"	2 P.M.	102.2	101.4	-	102.3	-	102.2	102	102	102.4	103	103.1	102.2	103.1	102.4	101.3	-	-	-	"	
	"	"	9 P.M.	102.4	101.2	-	103.2	-	105.4	-	-	-	-	-	-	-	-	-	-	-	-	Condemned.	
	"	Oct. 13,	12 N.	102	101.2	-	103.2	-	103.4	105	-	-	-	-	-	-	-	-	-	-	-	"	
	"	Oct. 14,	6 P.M.	103.4	103.3	103.1	-	105.2	-	106.2	-	-	-	-	-	-	-	-	-	-	-	"	
"	Oct. 15,	10 A.M.	101.2	104.2	104.2	-	104.3	-	104.4	105	-	-	-	-	-	-	-	-	-	-	-	Released.	
	"	"	2 P.M.	102.3	104	-	104.2	-	104.3	104.4	105	-	-	-	-	-	-	-	-	-	-	"	
	"	"	6 P.M.	102.3	-	100.4	-	101.2	101.3	102.3	102	-	-	-	-	-	-	-	-	-	-	"	
	"	"	101.2	-	100.4	-	100.4	101.2	101.2	101.1	-	-	-	-	-	-	-	-	-	-	-	"	
	"	"	101	-	100.4	-	102	-	102	102	102	-	-	-	-	-	-	-	-	-	-	"	
	"	"	102.4	101.4	101.4	-	102.3	-	102.3	102	-	-	-	-	-	-	-	-	-	-	-	"	
	"	"	102	102	101.3	-	103	-	103	102.2	-	-	-	-	-	-	-	-	-	-	-	"	
	"	Oct. 17,	"	102.1	102	102	-	102.1	-	102.1	102.1	-	-	-	-	-	-	-	-	-	-	"	
	"	"	102.1	102.1	102.1	-	102.1	-	102.1	102.1	102.1	-	-	-	-	-	-	-	-	-	-	"	
	"	"	102.1	102	102	-	102	-	102	102	102	-	-	-	-	-	-	-	-	-	-	"	
"	"	"	101.2	101.3	102	-	101.3	-	101.4	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	"	
	"	"	101.2	102	102	-	101.3	-	101.3	101.3	102	102	102	102	102	102	102	102	102	102	102	"	
	"	"	102.2	102	102.2	-	102.2	-	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	"	
	"	"	102.1	102.2	102.2	-	102.2	-	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	"	
	"	"	102.3	101.3	101.4	-	101.4	-	101.3	101.3	103	103	103	103	103	103	103	103	103	103	103	"	
	"	"	102	102.2	102.2	-	102.4	-	102.3	102.3	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	"	
	"	"	102	101.3	101.3	-	101.3	-	101.3	101.3	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	Condemned.	
	"	Oct. 18,	10 P.M.	101.2	105.1	-	106.2	-	102.1	-	-	-	-	-	-	-	-	-	-	-	-	Released.	
	"	"	6 P.M.	103.2	102	102	-	103	-	103	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	Condemned.	
	"	"	10 P.M.	101.3	101.3	101.3	-	101.3	-	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	"	



## OTHER HERDS.

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.																	Result.	Post-mortem Lesions.		
	Date.	Hour.	Tem- per- ature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.			12 M.	
Brookline, .	.	6 P.M.	102	101.2	101.1	101.2	102.1	101.4	101.4	101.2	101.3	101.4	101.4	102.2	101.3	101.4	101.4	101.4	101.4	101.4	101.4	101.4	Released.	-
" .	.	"	102	101.1	101.1	101.2	100	101	99	101.2	101.3	101.3	101.4	102.1	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	"	-
" .	.	"	101.4	101.3	101.3	101.4	101	101.2	101.1	101.2	101.3	101.3	102.1	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	"	-
" .	.	"	103	102.4	102.1	101.4	101.3	102.3	102.1	102.3	102.3	102.3	102.3	103	103.2	103	103	103	103	103	103	103	Retest.	-
Newton, .	.	"	101	105.4	105.4	105.4	105.4	106.1	106.1	106.1	106.2	106.2	106.3	106.1	106.1	106.1	106.1	106.1	106.1	106.1	106.1	106.1	Condemned.	-
" .	.	"	101	105.2	105.4	105.4	105.4	105.4	105.4	105.4	106.2	106.2	106.3	107.1	106	106	106	106	106	106	106	106	"	-
" .	.	"	101.2	106	106	106	106	107.1	107.1	107.1	106.2	106.2	106.3	106	106	106	106	106	106	106	106	106	"	-
" .	.	"	101.3	106.4	106.4	106.4	105	104.2	104.2	103.4	103.4	104.1	104.1	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	Released.	-
" .	.	"	100.3	100.3	100.3	100.3	100.2	101.2	100.4	101.4	101.3	101.3	102	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	"	-
Brookline, .	.	12 M.	102.3	101.3	101.3	101.3	102.3	101.4	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	"	-
" .	.	"	101.3	101.4	102	102	102	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	"	-
" .	.	"	101	101.3	101.1	99.3	99.3	99.4	99.4	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	"	-
" .	.	"	101.3	100.3	101.3	101	101	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	"	-
" .	.	"	102.1	101.3	101.2	101.1	101.1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	"	-
" .	.	"	102.3	100.4	100.1	101.2	101.2	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	"	-
Southborough, .	.	6 P.M.	103	101.3	101.3	101.3	101.3	102.2	102.2	103	103.4	103.4	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	Retest.	-
" .	.	"	101.3	102	102	102	102.3	102.3	104	103.3	103.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	"	-
" .	.	"	102	101.4	101.4	101.4	102.1	102.1	103	103.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	Released.	-
" .	.	"	101.4	101.3	101.3	101.3	103	103	105.4	105	105	104	102.4	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	Condemned.	-
" .	.	"	102	101.4	101.4	101.4	102.4	102.1	104.1	102.4	102.4	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	Retest.	-
" .	.	"	103	102.4	102.4	102.4	103.2	102.2	104	103.1	103.1	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	"	-
" .	.	"	101.2	101.3	101.3	101.3	102.4	102.4	104.2	103	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	"	-
" .	.	"	102	102.1	102.1	102.1	102.3	102.3	104.2	103	104.2	104.2	104.1	104.1	104.1	104.1	104.1	104.1	104.1	104.1	104.1	104.1	Released.	-
" .	.	"	103.3	103.4	103.4	103.4	104.4	104.4	103	104.2	104.2	104.2	104.1	104.1	104.1	104.1	104.1	104.1	104.1	104.1	104.1	104.1	Condemned.	-
Framingham, .	Dec. 21,	"	101.2	105.2	105.2	105.2	103	103	103	102.3	102.3	102.3	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	"	-
" .	"	"	101.3	102.1	102.1	102.1	106.1	106.1	106.1	106.1	106.1	106.1	105.4	105.4	105.4	105.4	105.4	105.4	105.4	105.4	105.4	105.4	"	-
" .	"	"	101.3	101.3	101.3	101.3	106.3	106.3	106.3	106.3	106.3	106.3	105.4	105.4	105.4	105.4	105.4	105.4	105.4	105.4	105.4	105.4	"	-
" .	"	"	101.3	101.3	101.3	101.3	106.3	106.3	106.3	106.3	106.3	106.3	105.4	105.4	105.4	105.4	105.4	105.4	105.4	105.4	105.4	105.4	"	-
" .	"	"	100.2	99.3	99.3	99.3	104.3	104.3	104.3	104.3	104.3	104.3	105.4	105.4	105.4	105.4	105.4	105.4	105.4	105.4	105.4	105.4	"	-
" .	"	"	99.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	"	-

[illegible]







## Other Herds — Continued.

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.																Result.	Post-mortem lesions.			
	Date.	Hour.	Tem- per- ature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.			10 P.M.	12 M.	
Framingham,	Dec. 21,	6 P.M.	101.4	-	101.2	-	101.2	-	101.3	-	101.4	-	101.3	-	101.3	-	101.4	-	101.4	-	101.3	-	Released.	*
"	"	"	102.1	-	107.2	-	107.2	-	106.2	-	106.3	-	106.2	-	106.3	-	106.2	-	106.3	-	106.3	-	Condemned.	*
"	"	"	101.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Released.	*
"	"	"	101.2	-	101.2	-	102	-	101.1	-	101.3	-	101.3	-	101.3	-	101.1	-	101.3	-	101.3	-	"	*
"	"	"	101.4	-	107	-	106.3	-	102.4	-	102.4	-	102.4	-	102.4	-	104	-	102.2	-	104.2	-	Condemned.	*
"	"	"	102.1	-	102.4	-	101.4	-	101.3	-	101.3	-	101.3	-	101.3	-	101.4	-	101.3	-	101.3	-	Released.	*
"	"	"	101.1	-	103.2	-	105.4	-	103	-	103	-	103	-	103.2	-	103.2	-	103.2	-	102.3	-	Condemned.	*
"	"	"	102	-	101.4	-	105.2	-	101.2	-	101.2	-	101.2	-	102	-	101.4	-	101.3	-	101.3	-	Released.	*
"	"	"	101.3	-	101.4	-	102.2	-	101.4	-	102.1	-	101.3	-	102.1	-	101.1	-	101.1	-	101.1	-	Condemned.	*
"	"	"	101.2	-	102	-	101.4	-	102.1	-	102.1	-	102.1	-	102.1	-	101.1	-	101.1	-	101.1	-	Released.	*
"	"	"	101.4	-	102.3	-	103	-	101.2	-	101.2	-	101.2	-	101.2	-	104	-	104	-	104	-	Condemned.	*
"	"	"	102	-	102	-	101.4	-	102.1	-	101.4	-	101.3	-	102.1	-	101.4	-	101.2	-	101.3	-	Released.	*
"	"	"	101.2	-	105	-	104.4	-	103.2	-	103	-	103	-	103.2	-	103.2	-	103	-	101.2	-	"	*
"	"	"	102.2	-	103.4	-	102.4	-	102.4	-	102.4	-	102.4	-	102.4	-	102.4	-	102.3	-	102.3	-	Condemned.	*
"	"	"	102.1	-	103.4	-	102.4	-	102.4	-	102.3	-	102.3	-	102.3	-	102.4	-	102.2	-	102.2	-	Released.	*
"	"	"	103	-	103.2	-	103.2	-	102.4	-	103	-	103	-	103	-	103	-	103	-	103	-	Released.	*
"	"	"	102.2	-	102.2	-	102.2	-	102.3	-	102.1	-	102.1	-	102.1	-	102.1	-	102.1	-	102.1	-	Released.	*
"	"	"	101	-	102	-	101.3	-	101.3	-	101.3	-	101.3	-	101.3	-	101.3	-	101.3	-	101.3	-	"	*
"	"	"	102.1	-	105	-	104	-	103.3	-	102.3	-	102.3	-	102.3	-	102.2	-	102.2	-	102.2	-	Condemned.	*
"	"	"	103.3	-	105.3	-	105.3	-	105.3	-	105.3	-	105.3	-	105.3	-	103.1	-	103.1	-	103.1	-	"	*
"	"	"	101.2	-	101.2	-	101.2	-	101.2	-	101.2	-	101.2	-	101.2	-	104.8	-	104.8	-	104.8	-	"	*
Southborough,	Dec. 8, 9,	8 P.M.	101.4	-	101.4	-	101.4	-	101.4	-	101.4	-	101.4	-	101.4	-	105	-	104.2	-	104.2	-	"	*
"	"	"	101.4	-	104.4	-	104.4	-	104.4	-	104.4	-	104.4	-	104.4	-	105.4	-	105.4	-	105.4	-	"	*
"	"	"	100	-	102	-	102	-	104.9	-	105.2	-	105.2	-	105.2	-	105.2	-	105.2	-	105.2	-	"	*
"	"	"	101	-	101	-	101	-	104.4	-	105.2	-	105.2	-	105.2	-	104.4	-	104.4	-	104.4	-	"	*
"	"	"	100.9	-	102.8	-	102.8	-	105	-	105	-	105	-	105	-	104.8	-	104.8	-	104.8	-	"	*
"	"	"	101	-	102.4	-	102.4	-	105.4	-	105.4	-	105.4	-	105.4	-	105.4	-	105.4	-	105.4	-	"	*
"	"	"	102	-	101.4	-	101.4	-	102.4	-	102.4	-	102.4	-	102.4	-	103	-	103	-	103	-	"	*
"	"	"	101.4	-	103.4	-	103.4	-	101.4	-	101.4	-	101.4	-	101.4	-	106.4	-	106.4	-	106.4	-	"	*
"	"	"	101.2	-	105.2	-	105.2	-	106	-	106	-	106	-	106	-	103.4	-	103.4	-	103.4	-	"	*
"	"	"	101.2	-	105.2	-	105.2	-	106	-	106	-	106	-	106	-	106.2	-	106.2	-	106.2	-	"	*



## Other Herds — Continued.

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.												Result.	Post-mortem Lesions.				
	Date.	Hour.	Temperature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.	12 M.
Milton,	Apr. 18, 19,	3 P.M.	101.4	5 AM 102.1	102.3	-	100.3	-	101.1	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.3	101.4	103.2	-	-	-	101.1	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.1	101.1	101.3	-	101	-	101	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.3	101.4	102	-	101	-	102	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102	102.1	102	-	101	-	101.1	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.2	100.4	102.2	-	101	-	101.2	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102	102.3	102.1	-	101.4	-	102	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102.2	103.1	103.3	-	102.1	-	102.1	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.2	100	103.1	-	100.4	-	100.4	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102	100.4	103.3	-	100.4	-	101.2	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102	99.4	101.2	-	101.1	-	101.2	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102	102	101.4	-	102.2	-	102.3	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	103	103	102.3	-	102.3	-	102.2	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102	102.1	103	-	101.4	-	102	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.3	101.3	101.3	-	101.1	-	101.1	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.4	102	101.3	-	101.3	-	101.4	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.1	102	101	-	100	-	100.2	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102.1	101.4	102	-	101.3	-	101.3	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102.1	102	102.2	-	102.1	-	101.3	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102	103.4	102.1	-	101.4	-	101.4	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.4	101.2	101.1	-	101.3	-	101.2	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102.1	103.2	102.3	-	101.4	-	101.2	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102	102	101.1	-	100.4	-	101.2	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102.4	102	103	-	100	-	101.1	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102	102.1	101.3	-	100.3	-	101.1	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102	102.3	100.3	-	100	-	99.4	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102.1	102.3	102.4	-	103.2	-	103	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.3	101.3	103	-	101	-	101.1	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.2	101.1	102	-	102.2	-	101.3	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	103.2	103	103.2	-	102.4	-	102	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	103.4	101.4	101.3	-	102.2	-	101.2	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.4	101.4	101.3	-	102.2	-	101.2	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102.2	102.1	102.1	-	101.3	-	101.2	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102	102	101.2	-	102	-	101.2	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	101.3	-	101.4	-	101.3	-	101.2	-	-	-	-	-	-	-	-	-	-	-	-
North Cambridge,	Apr. 25, 26,	8 P.M.	101.3	-	-	-	101	-	101	-	-	-	-	-	-	-	-	-	-	-	-
"	"	"	102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Retest.  
Released.  
Retest.  
Released.

[illegible]

## Other Herds—Continued.

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.												Result.	Post-mortem Lesions.				
	Date.	Hour.	Temperature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.	12 M.
Ponkapong,	May 16, 17,	6 P.M.	101.2	101.3	101.3	101.3	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4
"	"	"	101.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3
"	"	"	101.4	101.1	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3
"	"	"	101.3	101.4	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3
"	"	"	102	103.3	102.4	102.4	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3
"	"	"	101.4	102.1	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2
"	"	"	102	101	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3
"	"	"	102.1	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2
"	"	"	101.4	102	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
"	"	"	102	102	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
"	"	"	101.2	101.2	102	102	101.4	101.3	101.4	101.3	101.4	101.3	101.4	101.3	101.4	101.3	101.4	101.3	101.4	101.3	101.4
"	"	"	101.4	100	100	100	99.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4	100.4
"	"	"	102.1	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3
"	"	"	102.4	101	101.1	101.1	102	101.3	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
"	"	"	103	101.2	101.1	101.1	102	101.3	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
"	"	"	102.1	101.2	101.2	101.2	101.4	101.3	102	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
"	"	"	102.2	101.1	101.3	101.3	102	101.3	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
"	"	"	102.3	101.2	102	102	101.3	101.3	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
"	"	"	102.1	101.2	101.2	101.2	101.3	101.3	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2
"	"	"	103.1	101.3	101.3	101.3	101.4	101.4	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2
"	"	"	102.3	101.2	101.3	101.3	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
"	"	"	102.4	101.3	101.3	101.3	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
"	"	"	103	101.4	101.3	101.3	101.4	101.4	102	102	102	102	102	102	102	102	102	102	102	102	102
"	"	"	102.3	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
"	"	"	102.4	102.1	101.3	101.3	101.4	101.4	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
"	"	"	102.1	101.2	101.2	101.2	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
"	"	"	102	101.3	102	102	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
"	"	"	102	101.3	102	102	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1
"	"	"	102.4	102.1	102.3	102.3	102.4	102.4	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2
"	"	"	101	100.2	100	100	100.3	101	101	101	101	101	101	101	101	101	101	101	101	101	101
Falmouth, Herd 1, 1,	Nov. 1,	"	100.2	105.3	107	106.3	106.3	105.1	105.1	103	102.4	103.4	102.1	103	102.1	103	102.1	103	102.1	103	102.1
"	"	"	102	102	102	107	107.1	106.1	106.1	106.3	103	103.4	102.1	103	102.1	103	102.1	103	102.1	103	102.1









*Other Herds — Continued.*

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.																	Result.	Post-mortem Lesions.		
	Date.	Hour.	Temperature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.			12 M.	
Southborough,	.	Dec. 21,	{ 6 P.M. 101.1 } { 12 M. 101.3 }	-	101.3	-	101.4	-	102	-	101.4	-	-	-	-	-	-	-	-	-	-	-	Released.	
	"	"	{ 6 P.M. 102 } { 12 M. 101.2 }	-	102.3	-	101.4	-	102	-	102	-	-	-	-	-	-	-	-	-	-	-	"	
	"	"	{ 6 P.M. 102 } { 12 M. 101.4 }	-	101.3	-	101.3	-	102.1	-	102.1	-	-	-	-	-	-	-	-	-	-	-	"	
	"	"	{ 6 P.M. 101.3 } { 12 M. 101.4 }	-	101.2	-	101.2	-	101.2	-	101	-	-	-	-	-	-	-	-	-	-	-	"	
	"	"	{ 6 P.M. 101.2 } { 12 M. 101.2 }	-	-	102	-	101.2	-	101.3	-	-	-	-	-	-	-	-	-	-	-	-	"	
	"	"	{ 6 P.M. 100 } { 12 M. 101.3 }	-	101.4	-	101.1	-	101.2	-	101.1	-	-	-	-	-	-	-	-	-	-	-	"	
	"	"	{ 6 P.M. 101.3 } { 12 M. 101.4 }	-	101.4	-	101.1	-	101.2	-	101.1	-	-	-	-	-	-	-	-	-	-	-	"	
	"	"	{ 6 P.M. 100 } { 12 M. 101.2 }	-	101.1	-	101.4	-	101.1	-	100.3	-	-	-	-	-	-	-	-	-	-	-	"	
	"	"	{ 6 P.M. 100.2 } { 12 M. 100.3 }	-	101.4	-	101.3	-	101.2	-	101.1	-	-	-	-	-	-	-	-	-	-	-	"	
	"	"	{ 6 P.M. 100.1 } { 12 M. 100.1 }	-	102.4	-	101.3	-	101.2	-	100.1	-	-	-	-	-	-	-	-	-	-	-	"	
	"	"	{ 6 P.M. 101.1 } { 12 M. 101.4 }	-	101.2	-	101.2	-	101.1	-	100.1	-	-	-	-	-	-	-	-	-	-	-	"	
	Sherborn,	.	Nov. 29, 30,	{ 6 P.M. 101.1 } { 12 M. 101.1 }	-	101.4	-	101.4	-	101.1	-	101	-	-	-	-	-	-	-	-	-	-	-	Condemned.
"		"	{ 6 P.M. 101.2 } { 12 M. 101.2 }	-	101.4	-	101.4	-	101.1	-	101.2	-	-	-	-	-	-	-	-	-	-	-	Released.	
"		"	{ 6 P.M. 100.3 } { 12 M. 100.3 }	-	102.1	-	102.1	-	101.3	-	101.4	-	-	-	-	-	-	-	-	-	-	-	"	
"		"	{ 6 P.M. 101.2 } { 12 M. 101.2 }	-	101.2	-	101.2	-	102	-	101.3	-	-	-	-	-	-	-	-	-	-	-	"	
"		"	{ 6 P.M. 100.4 } { 12 M. 100.4 }	-	104	-	104.2	-	106.3	-	104.4	-	-	-	-	-	-	-	-	-	-	-	"	
"		"	{ 6 P.M. 101.1 } { 12 M. 101.1 }	-	102.3	-	104.2	-	105.3	-	105.1	-	-	-	-	-	-	-	-	-	-	-	"	
"		"	{ 6 P.M. 100.4 } { 12 M. 100.4 }	-	101.3	-	104.2	-	105.4	-	105.1	-	-	-	-	-	-	-	-	-	-	-	"	
"		"	{ 6 P.M. 100.2 } { 12 M. 100.2 }	-	102.2	-	104.2	-	105.4	-	105.1	-	-	-	-	-	-	-	-	-	-	-	"	
"		"	{ 6 P.M. 100.1 } { 12 M. 100.1 }	-	101.4	-	101.4	-	100.4	-	100.4	-	-	-	-	-	-	-	-	-	-	-	"	
"		"	{ 6 P.M. 100.3 } { 12 M. 100.3 }	-	101	-	101.2	-	101.4	-	101.4	-	-	-	-	-	-	-	-	-	-	-	"	
"		"	{ 6 P.M. 100.2 } { 12 M. 100.2 }	-	101.2	-	101.2	-	101.4	-	101.4	-	-	-	-	-	-	-	-	-	-	-	"	



*Other Herds — Continued.*

TOWN.	Date.	TEMPERATURES BEFORE INJECTION.					TEMPERATURES AFTER INJECTION.					Result.	Post-mortem Lesions.	
		9 A.M.	11 A.M.	1 P.M.	3 P.M.	5 P.M.	6 A.M.	9.30 A.M.	10.30 A.M.	12 N.	1 P.M.			4 P.M.
Brookline, Herd 2,	April 7,	102	101.3	102.4	101.4	101.3	101	103.2	102	102.3	102	103.2	Retest.	—
"	"	101.4	102	102.1	102.3	102.1	102.1	102.2	103	103	102.1	102.1	"	—
"	"	101.1	100.4	100.3	101.3	101.1	101.2	101.2	101.1	101.3	101.1	101.2	Released.	—
"	"	102.3	102	102	101.2	102	102.4	103.2	103.4	103.3	103.3	103.2	Retest.	—
"	"	101.3	101.3	101.3	101.4	101.3	101.3	102	102.3	103.1	102.3	103.3	"	—
"	"	101.1	101.2	101	101.2	100.4	101.2	102	102.2	102	101.3	101.2	Released.	—
"	"	102	101.1	102.4	102.1	101.4	106.4	107	107	106.4	105.4	107	Condemned.	—
"	"	101.4	101.3	102.1	102	101.3	103.3	106.1	106.2	106.2	106.3	106.3	"	—
"	"	102	101.4	100.4	101.4	101.3	103	106	106.1	106	106	104	"	—
"	"	102.2	102	101.3	101.1	101.2	101	107	106.2	106.1	105.3	104.4	"	—
"	"	101.3	102.1	102.2	101.4	101.4	102	102.2	102.2	103.1	102.3	102.1	Released.	—
"	"	102.3	102	102.3	102	102.1	104	103.3	103.3	101.2	101.4	102	Condemned.	—
"	"	102.1	102.1	102.1	102.4	102.3	100.3	102.3	102.3	102.1	102.2	102.4	Released.	—
"	"	102.3	102.3	102	102.2	102	102.3	101.3	101.3	102	102.1	102.3	"	—
"	"	101.2	101.1	101.3	102	102	102.2	105	105	101.4	102.3	103	Condemned.	—
"	"	102.1	102	102.3	102.1	102.4	102.2	103	103	103	102.1	102.3	Retest.	—
"	"	102	102	102.3	101	103	102.2	102.4	102.4	103	102.2	103	Released.	—



## Other Herds — Continued.

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.												Result.	Post-mortem Lesions.							
	Date.	Hour.	Tem- per- ature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.			6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.	12 M.	
Southborough,	Dec. 10,	6 P.M.	101.2	101.3	102	102	101.6			101.8													Released.	
"	"	"	101	101.5	102.2	102.2	101.4			101.8													"	
"	"	"	102	100.2	102	102	102			100.4													"	
"	"	"	101	100.8	102.2	102.2	101.4			101.6													"	
"	"	"	100.6	101.4	102	102.4	102.4			102.2													"	
"	"	"	99.6	101.5	100.6	100.6	100.2			100.2													"	
"	"	"	101	101.2	101.2	101.2	101.4			101													"	
"	"	"	101	101.2	101.2	101.2	101.4			101.2													"	
"	"	"	100.6	101	101.4	102.6	101.4			101.6													"	
"	"	"	101.4	101.5	102.6	101.6	101.6			101.6													"	
"	"	"	101	101.2	101.6	101.6	101.4			101.2													"	
"	"	"	101	100.5	101.6	101.8	101.6			101.6													"	
"	"	"	101.4	101.4	101.8	101.4	102			101.4													"	
"	"	"	101	100.5	102.4	102.4	101.8			101.4													"	
"	"	"	102	102.5	102.4	102.4	102.2			102.2													"	
"	"	"	102.2	101	102.2	102.2	102.2			102.2													"	
"	"	"	102.2	102	102	102.2	101.8			100.8													"	
"	"	"	101.4	101.2	102	102.2	101.8			101.6													"	
"	"	"	101.6	101.2	102	102.2	101.8			101.6													"	
"	"	"	102.4	102.2	102.4	102.4	102.2			102.2													"	
"	"	"	102.4	101.8	102.2	102.2	102.2			102													"	
"	"	"	100.6	101.2	101.8	101.8	101.8			101.4													"	
"	"	"	102.4	101	102.4	102.4	101.2			102													"	
"	"	"	100.4	100.6	101.6	101.6	100.8			100.4													"	
"	"	"	102.4	101.7	102.4	102.4	102.4			102.6		102.6											Retest.	
"	"	"	103	102.5	102.8	102.8	102.4			102.4		102.4											Released.	
"	"	"	103	102	102.6	102.6	101.8			102.2		101.6											Released.	
"	"	"	103.2	102.6	102.8	102.8	102.2			102.2		101.6											"	
"	"	"	103	102.8	103	103	101.8			101.8		101.6											"	
"	"	"	103.4	102	101.8	101.8	101.8			101.8		101.4											"	
"	"	"	103.4	102	102.8	102.8	101.2			101.4		101.4											"	
"	"	"	102.6	103	102.8	102.8	103			102		102											Retest.	
"	"	"	101.8	102.3	102.2	102.2	102.6			102.2		102.2											Released.	
"	"	"	103	102.2	102.4	102.4	102			101.8		101.8											"	

Retest.  
Released.  
Retest.  
Released.  
Retest.  
Released.

[illegible]







## Other Herds — Continued.

	COUNTY.	Date.	TEMPERATURES BEFORE INJECTION.							TEMPERATURES AFTER INJECTION.				
			8 A.M.	10 A.M.	12 N.	2 P.M.	6 P.M.	10 P.M.	12 M.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.
1	Middlesex,	Feb. 3, 4,	102.4	101.1	101.3	101.4	101	101	100.3	-	5 AM	6 AM	7 AM	8 AM
2	"	"	102.2	101	101	101.2	101.1	100.4	100.3	-	103	101	102.4	102
3	"	"	102	100.2	101.3	101.4	101.2	101.2	101.3	-	101.3	101.3	102.2	102.1
4	"	"	102.1	100	101.3	101.4	101.4	102	101.2	-	102	102	102.2	102.3
5	"	"	102	100.3	102	102	103	102	102	-	102.1	101.4	102	103
6	"	"	102	100.2	101.3	101.3	101.3	101	101.2	-	101.3	102	102.1	102.2
7	"	"	102.4	100.2	101.2	101.4	101.4	101.4	101	-	101.1	101.2	102.1	102
8	"	"	101.3	102.2	102	101	101.2	101.3	101.2	-	104.1	105	104.4	105.2
9	"	"	101.2	99.3	100.2	100	101.4	102	101.2	-	101.2	103	104.4	105.2
10	"	"	102.2	101.3	101.3	101.4	101.4	101.3	101	-	101.1	101.3	102	103
11	"	"	102.2	100.2	101	101.4	101.3	102	102	-	101.2	102.4	102.3	102
12	"	"	103	103	102.3	102.1	102.4	100.4	100	-	101.2	102	102	103
13	"	"	102.2	100	101.2	102	102	101.1	101.4	-	102	102	102.1	102
14	"	"	102.4	101.3	101.2	103	102	101.2	101	-	101.3	102	102.2	102
15	"	"	103	102	102.2	101.2	103	103	102.4	-	102.4	102.1	103	103
16	"	"	102	102.1	102	101.1	102	101.1	100.2	-	101.1	100.4	101.4	102
17	"	"	102	101.2	102.1	102	101.4	102	101.3	-	102	102	102.1	102.3
18	"	"	101.2	102	101.4	102.1	102	101.2	101.3	-	101.2	101.4	101.2	102
19	"	"	102.1	101.4	102.1	101	101.3	101.2	102	-	106	105.2	105.3	106
20	"	"	102	101.2	101.4	102	102.1	101.2	102	-	104.3	106	106.1	108
21	"	"	103	102.3	102.3	102.2	102.2	102	101	-	101.1	101.2	102	103
22	"	"	102	101.3	100.3	101.4	102.2	101.3	101.1	-	101.2	102.1	102.1	102.3
23	"	"	102	101.1	101.1	101	101.2	101	101	-	101	101.1	101.2	101
24	"	"	102.1	100.3	101.4	101.1	101.4	100.4	100.4	-	101.3	101.4	102	102
25	"	"	102	100.4	101	101.1	100.1	100.4	101.2	-	101.3	102	103.1	102
26	"	"	102	101	101.4	101.2	102	101.3	101	-	102	102	102.2	102.2
27	"	"	101.1	101.1	101.3	101	101	100.3	100	-	103.3	104.1	104	104
28	"	"	101	102	101.3	101.1	101	101.1	101	-	103	103.4	103.2	105
29	"	"	100	100.1	100.3	101	101	101	101.3	-	101	101.3	103	104.4
30	"	"	101	101	100.1	100.2	101.3	101	100	-	100.3	100.4	102	104.1
31	"	"	101.2	102.1	101.2	101.4	102	100	100	-	99.4	100.4	101	102.1
32	"	"	101	101.1	101.3	101.1	101.1	100.3	101	-	101.2	101.3	101.4	101.2
33	"	"	101.4	101.4	101.4	101.4	102	102.3	101.4	-	102.1	102	102.1	102.3
34	"	"	102.1	101.2	101.3	102	101.4	101	101.2	-	101.4	102	103	104
35	"	"	102	101.2	101	101.1	101.3	100	101	-	101.2	101	102	102
36	"	"	102.1	101.4	102.1	103	102	102.4	103	-	101.4	102.4	102.3	104
37	"	"	102	102	101.2	101.3	102.1	101.3	102.2	-	101	102.3	103	103.3
38	"	"	102.2	102.2	101.3	102	101.4	103	102.2	-	101.4	102.1	102.2	103.4
39	"	"	102.1	102.1	102	101.1	102.3	101.4	101	-	102.3	102.3	104	104.3
40	"	"	101.4	101.3	102	101.2	101.3	102.3	102.1	-	102	102.1	102.2	103.3
41	"	"	102	102.1	101.2	102	102	101.3	101	-	101.4	103.2	104.4	105.1
42	"	"	102.2	101.4	101.3	101	101.1	101.2	101.2	-	101.2	101.3	102	102
43	"	"	102	101.3	101.1	101.3	101.3	101.1	101.1	-	101	101.2	102	102
44	"	"	102	102	101.1	102	102.2	101	101.2	-	101	101.2	102	101.2
45	"	"	101.3	101.2	101	101.2	101.2	101	100.4	-	101.2	101.4	102.1	102
46	"	"	102.2	102	101.4	102	100.2	101.4	100.4	-	101	102.1	102.3	102.2
47	"	"	104	103.2	103.3	103.2	103.4	103.1	103	-	103.2	104.1	104.2	105
48	"	"	102.1	101.3	101	102.1	101.3	101.3	102	-	104	104.2	105.2	106
49	"	"	102	102	102	101.3	101	101	101	-	102	102.2	102.1	102.2
50	"	"	102.1	102	102	102.2	102	101.2	102	-	102	103.4	103.4	102.3
51	"	"	103.2	102.2	102.1	102	101.3	101.3	101.2	-	101.2	102.2	102.1	103
52	"	"	102	102	101.4	101.2	101.3	101.1	101	-	101.3	101.4	102.1	102
53	"	"	101.3	101.4	102	102.2	102.2	102	102	-	101.2	102	102.4	102.2
54	"	"	102	102.1	101.3	102.1	101	101.2	101	-	102.4	103	103.4	106
55	"	"	101	101.3	101.2	101.3	101.2	101.2	101.2	-	101.3	101.1	101.4	102.2
56	"	"	101	101	101	101.2	101	100	100	-	100.4	101.1	101.2	102
57	"	"	101.4	101.4	102.1	102.1	102.2	102.2	102	-	102	102.1	102	102
58	"	"	102.4	102	102	102	101.2	101	100.2	-	101.3	102.2	104	105
59	"	"	102.1	102	101.2	101.4	101.4	101	101	-	101.1	102	102	102.2
60	"	"	102	102	102	102.2	102.2	101.3	103	-	101.3	100.1	103	103
61	"	"	102.4	103	102	102.2	102.2	102	102	-	102.4	101.2	102	102.2
62	"	"	102	101.4	101.2	101.3	101	101.1	101	-	100.2	101.2	101.2	102.1
63	"	"	102.2	101.3	101.1	102	101.4	101.3	101.2	-	101.3	102	102	102.3
64	"	"	102.1	102	101.2	101.4	101.3	101	100	-	100.4	102.1	102	102
65	"	"	101.2	101	101.1	101.2	101.1	100.2	101.1	-	100.1	101.2	101.1	102.3
66	"	"	102	102.1	101	102	101.4	101	101.1	-	101	102	102	102.1
67	"	"	102.2	102.1	101.1	102	102	100.1	101	-	102	101.4	102	102
68	"	"	103	102.3	102	101.4	102.3	101	101.2	-	101	101.3	101.2	102.1
69	"	"	102	101.3	101.4	101.4	101.4	102	101	-	102	101	101.3	102.1

*Other Herds — Continued.*

TEMPERATURES AFTER INJECTION.												Result.	Post-mortem Lesions.
11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.		
9 AM	10 AM	11 AM											
100	100.2	101.2	101.4	101	101	101.3	102.1	102				Released.	1
100	100	100.2	101.2	102	101	101	101.1	101.2				"	2
100.3	100	100.2	101	101	101	101.2	102	101.1				"	3
98	99.3	100.2	100.2	102	101	102	102	102.1				"	4
101.1	101.2	102	102	102	102.2	101.1	102.2	102				"	5
101	101.2	102	101.3	102	104.4	101.3	102	101.4				"	6
101	101.1	101.4	101.4	102	102	102	102.2	102				"	7
106.2	106	106	106.2	106	105.4	105.2	105	-				- 1	8
105	104.1	104.3	104	104	104.3	106	104.4	104.1				Condemned.	9
102	101.2	101.1	102	101.3	102	102.1	102.2	101				Released.	10
101.1	100.2	100.3	100.4	101	101	100.4	101	101				"	11
100.4	101.2	101	101.2	101.4	101.2	101.4	102.1	102.1				"	12
101	101.2	100.3	101	100.2	101	101.2	101.4	102				"	13
100.4	100.1	101	101	101.1	101.3	101.2	102	103				"	14
102.4	102.1	102.2	103	102	102.3	103	103	102.4				"	15
101.4	100.4	100.4	101.2	100.3	100.1	102	102	102				"	16
100.4	100.3	101	100.3	101.2	102.1	101.1	101	101.1				"	17
100.1	100.4	100	100.2	101.1	102	102.1	102	102				"	18
107.1	108	107.1	106.2	106	106	106.1	106	-				- 1	19
107.1	107.2	107	106.3	106.1	106.2	105	103.4	104.4				Condemned.	20
101.2	101.4	100.2	101.2	101.1	102	101.1	102	102.1				Released.	21
101.3	99.4	100.3	101.1	102.1	102	102	102.2	101.2				"	22
101.1	100.2	101.1	101	100	100.1	100	100	101.2				"	23
101.1	101	100.1	101	101.4	101.2	102	102	101.1				"	24
101.2	101.3	101.3	101.1	101	100.2	102	101	102				"	25
100	100.4	100	101.2	101.3	101.1	101.1	102	101.2				"	26
106.3	106.2	106.1	106	106	105	104.2	104.1	-				- 1	27
106	105	107	106.4	106.2	106.3	106	105	104.2				Condemned.	28
204.3	104	103.2	102.3	102	102.4	103.1	103.1	-				- 1	29
104.1	105	104.4	104.1	104.1	105	105	104.2	104				Condemned.	30
101.1	101.4	101.1	102	100	100.4	100.3	101	101.1				Released.	31
101.3	101.2	101	101.2	100.4	101.1	102	102.1	102.1				"	32
104	105.1	106	106	106.1	105.4	106	105.4	-				- 1	33
105.1	104	105	105	104	104.2	105.4	104.1	105				Condemned.	34
101.4	102	101.1	101	101	101.1	101.2	102	102				Released.	35
104.4	105.3	106	106	107	106.3	105.4	105.3	-				- 1	36
105	106.2	106.3	107.1	107	106.3	107	105.4	105.1				Condemned.	37
104	105	105.1	106.1	106.2	107	106.3	106.3	-				- 1	38
105.3	105.2	106.1	106.2	107	106	105.3	104.2	104				Condemned.	39
105	105.4	106	106	105.4	106	104	103.4	-				- 1	40
107	106	106.2	105.4	106.1	105.3	105.1	104	105				Condemned.	41
103.1	101.1	102	102	101.3	102	101.2	102	100				Released.	42
102.3	101.4	101.3	101.2	101.1	101.4	102	102	102				"	43
102	102.2	102.1	101	101.1	101.3	102	102.2	102				"	44
102.2	102.2	102	102	102	102.4	103	103	102.4				"	45
102.1	101.2	101	101.3	102	101.2	101.4	102	101.3				"	46
106	105.2	105.4	105.4	106	106.1	105.3	106	-				- 1	47
107	106	106.1	105.1	106.1	106.1	106.2	105.2	105				Condemned.	48
103	101.4	101.2	101.1	101.2	102	102.1	101.3	102				Released.	49
104	102.3	103	103.1	102.2	103.1	103.2	103.2	103				"	50
103	102	102	101.2	102	102	102.2	103	103.1				"	51
102	100	100.4	101.1	101.2	102	102.1	102	102				"	52
103.1	105.1	105.4	105.2	105.2	105.2	105	104.4	-				- 1	53
106.2	106.2	105	106	105	104.1	104.2	104	103.4				Condemned.	54
102.2	101	101	102	101	102	102	101.2	102				Released.	55
102	100.3	102	101.1	101	101.1	102.1	102.1	101.2				"	56
102	103.3	102.2	101.2	101.4	102.1	102	102.1	-				- 1	57
107	105.3	105.1	104	104.4	105.4	105	104.2	104				Condemned.	58
103	102.3	102	102	102	102	103	102	102.1				Released.	59
102	103.3	103.2	103.4	104.1	104	105.2	104.2	-				- 1	60
102.4	102.2	103.1	103	104.2	105	106.2	105.4	105				Condemned.	61
102.2	101.1	101	101.3	101.3	101.1	101.3	102	101				Released.	62
102.4	102	102	102	102	102	102.2	102	102				"	63
103	102	101	101.2	101.2	101.1	102.2	102	101.2				"	64
101.2	102	101.1	103	100.4	101.1	102	101.4	101.2				"	65
102	102	103.1	101.3	101	101.3	102.1	102	102				"	66
101.3	101.3	101.1	101.2	100.4	101.3	102.2	102.1	102.1				"	67
102.4	102	101.4	101.3	102.2	102	102.1	102.2	102				"	68
103	101.4	102	101	102	101.4	101.3	102	101.4				"	69

1 Retest on March 4.

## Other Herds — Continued.

	COUNTY.	Date.	TEMPERATURES BEFORE INJECTION.								TEMPERATURES AFTER INJECTION.				
			8 A.M.	10 A.M.	12 N.	2 P.M.	6 P.M.	10 P.M.	12 M.		6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.
1	Middlesex,	Feb. 3, 4,	101.2	101.4	101.2	102	101.4	101.1	101		-	5 AM	6 AM	7 AM	8 AM
2	"	"	100.3	101.3	101.4	102	102	102.2	102		-	101	102	101.4	102.3
3	"	"	101.2	101.2	101.2	101.1	102	101	101		-	102.4	101.4	102.4	102.3
4	"	"	103	102	101.2	102	102.1	102.1	101		-	101.2	102	102	102.2
5	"	Feb. 10, 11,	9 AM	11 AM	12 N	2 PM	4 PM				4 AM		8 AM	9 AM	
6	"	"	102.2	102.1	101.3	101.2	101.2	-	-	-	101.1	101	101	101	101.2
7	"	"	102.1	102	101.3	101.2	101	-	-	-	101.2	101.2	101.3	101.4	102.1
8	"	"	102.3	102.2	102.1	102.1	102	-	-	-	100.3	100	101.2	102	103.4
9	"	"	102	101.3	102.3	102.1	102	-	-	-	101	100.3	101.2	100.4	102
10	"	"	102.4	102	101.3	102	102	-	-	-	101.2	101.2	101.2	101.1	102.2
11	"	"	102.1	101.1	100.4	101.2	101.4	-	-	-	100.3	101	101.3	102	102.1
12	"	"	102.3	102.2	102	102	101.3	-	-	-	101.1	100.4	101.2	103	102.1
13	"	"	102.3	101.2	101.3	101.2	102	-	-	-	100.4	101.1	101.4	102	103
14	"	"	102.2	102	102	102.1	102	-	-	-	101.3	100.2	101.2	101.2	103
15	"	"	102.3	103	101.3	102	102.1	-	-	-	101	102	101.2	101.3	102.2
16	"	"	101	100.3	101.4	101.1	101.2	-	-	-	101.1	100.3	101	101	101.2
17	"	"	102	101.2	101.1	102	101.3	-	-	-	100.3	101.3	102.1	101.3	102.1
18	"	"	103	102.1	101.4	101.2	101.2	-	-	-	101.2	101.4	102	102	102.1
19	"	"	102.1	101.3	102.3	101.4	101	-	-	-	101.2	101.1	102	101.3	102.3
20	"	"	101.4	101.3	101.1	102	101.2	-	-	-	101.3	101.3	102	101.3	102
21	"	"	102.1	101.3	101.3	101.3	101.2	-	-	-	100.3	101.2	101.1	101.2	102.1
22	"	"	102	101.3	100.4	102.2	102	-	-	-	103	102.4	102.1	102	102
23	"	"	102	101.4	101.4	102.1	101.4	-	-	-	102	101.3	101.3	102	102.2
24	"	"	102.1	102	101.2	102	102	-	-	-	101.1	101.1	101.2	102	102
25	"	"	102.3	101.2	101.1	101.3	101.3	-	-	-	101.2	101.2	102	101.2	102.2
26	"	"	102.1	101.4	101.3	102	102	-	-	-	101.1	101.1	102.1	102.2	103.1
27	"	"	103	102	102	102	102	-	-	-	101.3	101.3	102	101.2	102.2
28	"	"	101.4	101.4	100	102.2	102.1	-	-	-	102.1	101.3	102	102	103
29	"	"	103.2	103.1	103	102.2	101.2	-	-	-	103	103.2	104	104	105
30	"	"	103	102.4	102.3	103	102.2	-	-	-	102.4	102	102.1	103	103.2
31	"	"	102.4	102	101.3	102	102.2	-	-	-	102.1	102.1	102.1	102.2	102.2
32	"	"	102.1	102.1	102.2	102.3	102.3	-	-	-	104	103.2	103	103	103.2
33	"	"	101.4	101.4	102	101	101.1	-	-	-	102.1	101.2	101.2	102.2	101.1
34	"	"	103	102	102.1	101	102.2	-	-	-	102.4	101.4	102	101.4	101.1
35	"	"	101.3	101.4	101.3	101.2	102.1	-	-	-	102.1	101	102.2	102	102.3
36	"	"	102	101.2	101.3	101.1	101.2	-	-	-	101.3	102	102.3	103	101
37	"	"	102.1	102	102	102.2	102.1	-	-	-	101.2	101.2	102	102	101.2
38	"	"	103.2	103.4	103	103.1	102.3	-	-	-	104	104	103.2	102.2	102.2
39	"	"	102.4	102	101.4	102.1	103	-	-	-	101.1	102	102.1	102.1	103
40	"	"	102.2	102.4	102.1	103	102.2	-	-	-	101.2	101.3	101.1	101.4	102.2
41	"	"	103.2	103.2	104	104	104	-	-	-	102	102.1	102.3	102.2	103.1
42	"	"	103	102.2	102.2	103	103.1	-	-	-	102.3	102.2	102.1	102.2	102.1
43	"	"	103	102.4	102.3	103.1	103.1	-	-	-	103	102	103	103	102.4
44	"	"	101.4	101.3	102	102.1	102.2	-	-	-	101.2	101.1	101.2	102	101.1
45	"	"	101.1	101.3	101.3	102.1	102.3	-	-	-	101.2	101	102.1	103	103
46	"	"	102.2	102	101.2	102.1	102	-	-	-	101.2	101.2	103.1	103	103.2
47	"	"	101.3	101.1	101.4	101.4	101.3	-	-	-	101	102.1	101.4	102.2	103.2
48	"	"	102	101.4	101.3	100.1	101.2	-	-	-	102	102	103	105	105
49	"	"	102	102	103	102	101.2	-	-	-	101.2	101	101.1	101.1	101.4
50	"	"	102.1	101.4	102	102.4	102.2	-	-	-	102.2	102.4	102.2	102.3	103
51	"	"	103	103	103.2	103.1	103	-	-	-	102.2	101	102.3	102.3	101.2
52	"	"	103	102.2	102.2	103	102.1	-	-	-	101.4	102.2	102	102	102.2
53	"	"	102.3	102.1	102.3	102.2	102.2	-	-	-	102	101.1	102.3	102.4	102.2
54	"	"	102.4	102.4	102	102.2	103	-	-	-	102.2	102.3	102.1	103	102.4
55	"	"	102.4	103	102.4	102.4	102.3	-	-	-	102	102	102.2	103.2	103.4
56	"	"	102.1	102.1	102	102.2	102.1	-	-	-	101.1	102	102	102.1	103
57	"	"	102.1	102.2	102.3	102.4	102.1	-	-	-	102.2	102	102.1	102	102.2
58	"	"	100.3	102	102.3	102.2	102.1	-	-	-	102	102	103	102.2	101.1
59	"	"	102	102.1	102.2	102.1	102.1	-	-	-	101	101.2	102.1	102.2	101.3
60	"	"	103.2	103	102.4	102.2	102	-	-	-	101.1	101	102.1	100.2	100.1
61	"	"	103.1	103	103	101.1	101.2	-	-	-	101	101	102	102	101.4
62	"	"	-	-	-	-	-	-	-	-	103.1	103.1	103.2	103.2	103
63	"	"	100.1	101.1	101.4	101.2	103	-	-	-	102	102.1	100.3	101	102
64	"	"	-	-	-	-	103.1	-	-	-	102.4	103.3	103.2	102.2	103
65	"	"	-	-	-	-	103	-	-	-	102	101.4	101.3	102.2	102.2
66	"	Feb. 3,	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM		6 AM	7 AM	8 AM	9 AM	10 AM
	"	"	101.2	101.3	101.4	101.3	101	101	100.3		103	101	102.4	102	100
	"	"	101.1	101	101.2	101.1	101.1	100.4	100.3		101.3	101.3	102.2	102.1	100

## Other Herds — Continued.

TEMPERATURES AFTER INJECTION.												Result.	Post-mortem Lesions.	
11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.	12 M.		
9 AM	10 AM	11 AM												
102	101.1	101	100.4	101.3	101.2	102	102.1	102	-	-	-	-	Released.	1
104	105	105	105	105	104.4	104	103.4	-	-	-	-	-	1	2
103	104.3	105.1	106	104.4	106	105	104.2	103	-	-	-	-	Condemned.	3
103	102	102.1	101.4	101.4	101	103	103	102	-	-	-	-	Released.	4
10 AM	11 AM	12 N												
103.2	102.4	102	101.4	102	102	-	-	-	-	-	-	-	"	5
102.1	102.1	101.2	102	101.1	102	-	-	-	-	-	-	-	"	6
102.4	103.4	102	101	102	102.2	-	-	-	-	-	-	-	"	7
101.2	102	101.1	101.4	101.2	102	-	-	-	-	-	-	-	"	8
102	102	102.1	102	101.3	102.3	-	-	-	-	-	-	-	"	9
102	101.3	101.2	101	101.2	101.4	-	-	-	-	-	-	-	"	10
101.2	101.2	101.2	101.2	102	102	-	-	-	-	-	-	-	"	11
102.1	101.2	102	101.3	101.4	102	-	-	-	-	-	-	-	"	12
101.4	101.2	102	100.3	102	102	-	-	-	-	-	-	-	"	13
102.4	102.4	102.3	102.1	102	102	-	-	-	-	-	-	-	"	14
101.4	101.3	101.4	101	101.2	100.4	-	-	-	-	-	-	-	"	15
102.1	101.4	102.1	102.1	102	101.4	-	-	-	-	-	-	-	"	16
102.4	101.4	101.1	102.1	102	102	-	-	-	-	-	-	-	"	17
102	102	101.3	101.1	103	102	-	-	-	-	-	-	-	"	18
101.4	102	101.2	101.2	101	101.4	-	-	-	-	-	-	-	"	19
102.1	102	101.4	100.4	102	102	-	-	-	-	-	-	-	"	20
102	101.4	102.1	101.3	102	102	-	-	-	-	-	-	-	"	21
102	102	102	102	102.1	101.4	-	-	-	-	-	-	-	"	22
102.3	102	102	102	102	102.1	-	-	-	-	-	-	-	"	23
102	101.1	101.2	101.2	101.4	102.1	-	-	-	-	-	-	-	"	24
102.2	102	102	101.1	102	102.1	-	-	-	-	-	-	-	"	25
102.1	101.4	102	101.3	101.3	102.4	-	-	-	-	-	-	-	"	26
102	102.1	102.1	102	102.3	102.2	-	-	-	-	-	-	-	"	27
105	104.4	104	103.2	103.1	102.4	-	-	-	-	-	-	-	Retest.	28
104.1	102.4	102.2	102.1	102.2	103.3	-	-	-	-	-	-	-	"	29
102.2	101.4	102	102.3	102.3	103	-	-	-	-	-	-	-	Released.	30
103	103.1	102.4	103.1	103.2	103	-	-	-	-	-	-	-	"	31
102	102.2	103	102	101	101.2	-	-	-	-	-	-	-	"	32
102	102.3	102.1	102.1	101.4	102	-	-	-	-	-	-	-	"	33
103	102.4	102.2	102	102	102.1	-	-	-	-	-	-	-	"	34
101.2	101.4	102	101.4	100.4	101.2	-	-	-	-	-	-	-	"	35
102	102.4	102	102	101.4	102.1	-	-	-	-	-	-	-	"	36
103	102	102.2	102.2	102.2	102.4	-	-	-	-	-	-	-	"	37
102.3	102.4	102.4	103.1	103	103	-	-	-	-	-	-	-	"	38
102	102	101.2	101.4	101.2	101.4	-	-	-	-	-	-	-	"	39
104	103.3	104	103.2	102.4	102.4	-	-	-	-	-	-	-	"	40
102.2	104.1	102.4	102.3	102.2	102.1	-	-	-	-	-	-	-	"	41
103	103	102.2	102.4	103	103.1	-	-	-	-	-	-	-	"	42
101.2	101.2	101	101.4	101.2	101.1	-	-	-	-	-	-	-	"	43
102.2	102.4	103.2	103.2	104.2	105.2	105	-	-	-	-	-	-	1	44
104.3	106	107	106.4	105.4	105	-	-	-	-	-	-	-	Condemned.	45
104.1	105	106	106	105.2	104.2	104.3	-	-	-	-	-	-	1	46
106	105.2	105.4	104	105	105	-	-	-	-	-	-	-	Condemned.	47
102.1	103	101.3	102	102.4	102.1	-	-	-	-	-	-	-	Released.	48
103.1	102.2	103.2	103.1	102	102.1	-	-	-	-	-	-	-	"	49
103	102	102	102.2	103.1	103.1	-	-	-	-	-	-	-	"	50
102.3	102	103	102.1	103	102.4	-	-	-	-	-	-	-	"	51
101.3	101.3	101	102	102	102.4	101.3	-	-	-	-	-	-	"	52
102.2	102.2	102.4	103	102.1	102.4	-	-	-	-	-	-	-	"	53
105.2	104.1	103.2	102.2	102.2	102.3	102.2	-	-	-	-	-	-	1	54
103.2	104.1	104	102.3	103	103	-	-	-	-	-	-	-	Condemned.	55
102.2	102.1	102.1	102.2	103	102.2	-	-	-	-	-	-	-	Released.	56
101.2	102	102.4	102.2	102.1	102.2	-	-	-	-	-	-	-	"	57
102	103.1	103.4	102	102.4	102.3	-	-	-	-	-	-	-	"	58
101.1	101.2	101	102	102	102	-	-	-	-	-	-	-	"	59
102.1	102.1	102	101.3	102	102	-	-	-	-	-	-	-	"	60
102.4	103	103.1	103	103.1	103	-	-	-	-	-	-	-	2	61
101	101.3	101.4	102.4	102.4	102.2	-	-	-	-	-	-	-	1	62
103.3	102.2	104	105	103.2	-	-	-	-	-	-	-	-	Condemned.	63
102.2	103	103.1	103	102.2	-	-	-	-	-	-	-	-	Released.	64
11 AM	12 N	1 PM												
100.2	101.4	101	101	101.3	102	102	-	-	-	-	-	-	"	65
100	100.2	101.2	102	101	101	101.1	101.2	-	-	-	-	-	"	66

1 Retest on March 4.

2 Killed on physical examination.

## Other Herds — Continued.

	COUNTY.	Date.	TEMPERATURES BEFORE INJECTION.								TEMPERATURES AFTER INJECTION.				
			8 A.M.	10 A.M.	12 N.	2 P.M.	6 P.M.	10 P.M.	12 M.		6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.
1	Middlesex,	Feb. 3,	2PM	3PM	4PM	5PM	6PM	7PM	8PM		102	102	102.2	102.3	100.3
2	"	"	101	101.4	102.1	101.2	101	101.2	101.3		102.1	101.4	102	103	98
3	"	"	101.3	101.4	101.4	101.4	101.3	102	101.2		101.3	102	102.1	102.2	101.1
4	"	"	102	102	102.2	103	100.1	102	102		101.1	101.2	102.1	102	101
5	"	"	101.3	101.4	101.4	101.4	101.3	101.4	101		101.1	101.3	102	103	102
6	"	"	101.4	102	101.3	101.4	101.4	101.3	101		101.2	102	102	103	102.1
7	"	"	101.2	101.4	101.4	101.2	101.3	102	102		101.2	102.4	102.3	102	101.1
8	"	"	102.1	100.4	97.3	102.4	100	100.4	101.3		101.2	102	102	103	100.4
9	"	"	101.3	101.3	102	102	101.3	101.1	101.4		102	102	102	102	101
10	"	"	101.4	102	102	102	101.1	101.2	101		101.3	102	102.2	102	100.4
11	"	"	102.3	101.2	101.4	103	103.1	103	102.4		102.4	102.1	103	103	102.4
12	"	"	101.1	101.1	102.3	101.3	101.1	100	100.2		101.1	100.4	101.4	102	101.4
13	"	"	102	102.1	102	102	101.2	101	101.3		101.2	101.4	101.2	102	100.1
14	"	"	101.2	101.4	102	102	102.1	101.3	101		102	102	102.1	102.3	100.4
15	"	"	102.2	102	102.2	102.2	102	101.3	101		101.1	101.3	102	103	101.2
16	"	"	102	101.4	102	102	102	101.3	101		101.2	102.1	102.1	102.3	101.3
17	"	"	101.1	101	101.1	101.2	100.2	101	101		101	101.1	101.2	101	101.1
18	"	"	101.4	101.1	101.1	101.4	101	100.4	100.4		101.3	101.4	102	102.1	101.1
19	"	"	101.2	101.1	101	100.1	101.1	100.4	101.2		101.3	102	103.1	102	101.2
20	"	"	101.4	101.2	100.4	102	101.1	101.3	101		102	102	102.2	102.2	100
21	"	"	101.2	101.4	101.3	102	101.1	100	100		99.4	100.4	101	102.1	101.1
22	"	"	101.3	101.1	101.1	101.1	101.2	100.3	101		101.2	101.3	101.4	101.2	101.3
23	"	"	101.1	101.1	101	101.3	101	100	101		101.2	101	102	102	101.4
24	"	"	101.3	101	102.1	101.1	101.1	101.2	101.2		101.2	101.3	102	102	103
25	"	"	101.2	101.3	102	101.3	101.1	101.1	101.1		101	101.2	102	102	102.3
26	"	"	102.1	102	102	102.1	102	101	101.2		101	101.2	102	101.2	102
27	"	"	101.1	101.2	102	101.2	101.2	101	100.4		101.2	101.4	102.1	102	102.2
28	"	"	101.4	102	102.1	101.3	101.2	101.4	100.4		101	102.1	102.3	102.2	102.1
29	"	"	101.3	101.3	101.3	101	101	101.1	101		102	102.2	102.1	102.2	103
30	"	"	102.1	102.1	101.3	101.2	101.3	101.1	101.2		101.2	102.2	102.1	103	103
31	"	"	101.2	101.2	101.4	101.3	101.1	101.1	101.1		101.3	101.4	102	102	102
32	"	"	100.3	101.3	101.3	101.2	101.2	101.2	101.2		101.3	101.1	101.4	102.2	102.2
			101.2	101.2	101.2	101	100	100	100		100.4	101.1	101.2	102	102
33	"	"	8AM	10AM	12 N	2PM	7PM	10PM	12 M		102.3	102	-	102.3	-
34	"	"	-	-	-	-	103.1	-	-		102.3	102	-	102.3	-
35	"	"	-	-	-	-	102	-	-		101.2	101.2	-	101	-
36	"	"	-	-	-	-	102.1	-	-		102.1	102.1	-	103	-
37	"	"	-	-	-	-	101.4	-	-		102	102	-	102.4	-
38	"	"	-	-	-	-	102	-	-		102.3	102.2	-	102.1	-
39	"	"	-	-	-	-	101.2	-	-		101.3	101.3	-	101.2	-
40	"	"	-	-	-	-	103.1	-	-		102.3	101.3	-	102	-
41	"	"	-	-	-	-	102.3	-	-		102.1	101.4	-	102.3	-
42	"	"	-	-	-	-	101	-	-		101.2	101.1	-	102.1	-
43	"	"	-	-	-	-	102.4	-	-		101.3	102	-	102	-
44	"	"	-	-	-	-	100.4	-	-		100.4	101.3	-	102.1	-
45	"	"	-	-	-	-	102.2	-	-		101.4	101.4	-	102.3	-
46	"	"	-	-	-	-	101	-	-		101	101.4	-	102.3	-
47	"	Mar. 3,	102	102.2	102.1	102.1	-	-	-		102	102.3	103	103	103
48	"	"	101.4	101.4	101.1	102.3	-	-	-		102	102.1	100.3	101	102
49	"	"	102.2	103.2	100	101.4	-	-	-		102	101.3	102	102.3	102.4
50	"	Sept. 2,	-	101.2	-	-	-	-	-		-	-	-	-	101.1
51	"	May,	-	102	-	-	-	-	-		-	-	102	102	102.4
52	"	Sept. 1,	-	101.2	-	-	-	-	-		-	-	-	-	100.2
53	"	May,	-	102.3	-	-	-	-	-		-	-	102.1	102.2	102.2
54	"	"	-	101.3	-	-	-	-	-		-	-	103.2	101.3	103
55	"	Sept. 1,	-	101.4	-	-	-	-	-		-	-	-	-	-
56	"	Sept. 7,	-	103.2	-	-	-	-	-		-	-	102.1	-	102
57	"	"	-	103	-	-	-	-	-		-	-	101.4	-	102
58	"	"	-	103.1	-	-	-	-	-		-	-	102.2	-	102
59	"	"	-	102.2	-	-	-	-	-		-	-	102	-	102
60	"	"	-	102.3	-	-	-	-	-		-	-	101.4	-	101.4
61	"	"	-	104	-	-	-	-	-		-	-	102	-	101.4
62	"	"	-	103	-	-	-	-	-		-	-	102	-	102.1
63	"	"	-	103	-	-	-	-	-		-	-	102.2	-	101
64	"	"	-	104.1	-	-	-	-	-		-	-	102	-	101.3
65	"	Mar. 3,	10AM	11AM		1PM	2PM	3PM	4PM		102	102.1	102	102	102
66	"	"	102.2	102.1	102	101.3	101.2	101.1	102.2		101.1	102	102	102.2	103
67	"	"	102.1	102	101.2	101.2	101.3	102	101.4		100.2	101.2	101.2	102.2	102.2

## Other Herds—Continued.

[illegible]

## Other Herds — Continued.

	COUNTY.	Date.	TEMPERATURES BEFORE INJECTION.							TEMPERATURES AFTER INJECTION.				
			8 A.M.	10 A.M.	12 N.	2 P.M.	6 P.M.	10 P.M.	12 M.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.
1	Middlesex,	Mar. 3,	10AM	11AM	1PM	2PM	3PM	4PM						
2	"	"	102.2	101.3	101.2	101.1	101.2	102	101.3	101.3	102	102	102.3	102.4
3	"	"	102.2	102	101.3	101.2	101.3	101.4	102.1	100.4	102.1	102	102	103
4	"	"	101.2	101	100.3	101.1	101.2	101.2	101.2	100.1	101.2	101.1	102.3	101.2
5	"	"	102.1	102.1	101.2	101	102	102	102	101	102	102	102.1	102
6	"	"	102	102.1	101.3	101.1	101.2	102.2	102	102	101.4	102	102	101.3
7	"	"	102.1	102.3	102	102	102	101.4	102.2	101	101.3	101.2	102.1	102.4
8	"	"	102.4	101.3	101.3	101.4	101.3	101.4	101.3	102	101	101.3	102.1	103
9	"	"	102	101.4	101.2	101.2	102	102	101.4	101	102	101.4	102.3	102
10	"	Feb. 10,	103	102	102	101.2	102	102.1	102.4	101.2	102.1	102	102.2	103
11	"	"	102.1	101.3	101.2	102.2	-	-	-	101.1	101	101	101	101.2
12	"	"	102	101.3	101.2	101	-	-	-	101.2	101.2	101.3	101.4	102.1
13	"	"	102.2	102.1	102.1	102	-	-	-	100.3	101	101.2	102	103.4
14	"	"	101.3	102.3	102.1	102	-	-	-	101	100.3	101.2	100.4	102.2
15	"	"	102	101.3	102	102	-	-	-	101.2	101.2	101.2	101.2	102.2
16	"	"	101.1	100.4	101.2	101.4	-	-	-	100.3	101	101.3	102	102.1
17	"	"	102.2	102	102	101.3	-	-	-	101.1	100.4	101.2	103	102
18	"	"	101.2	101.3	101.2	102	-	-	-	100.4	101.1	101.4	102	103
19	"	"	102	102	102.1	102	-	-	-	101.3	100.2	101.2	101.2	103
20	"	"	103	101.3	102	102.1	-	-	-	101.2	101.2	101.3	102.2	102.4
21	"	"	101	101.4	101	101.2	-	-	-	101.1	100.3	101	101	101.2
22	"	"	101.2	101.1	102	101.3	-	-	-	100.3	101.3	102.1	101.3	102.1
23	"	"	102.1	101.4	101.2	101.2	-	-	-	101.2	101.4	102	102	102.1
24	"	"	101.3	102	104	101.1	-	-	-	101.2	101.1	102	101.3	102.3
25	"	"	101.3	101.1	102	101.2	-	-	-	101.3	101.3	102	101.3	102.2
26	"	"	101.3	101.3	101.3	101.2	-	-	-	100.3	101.2	101.1	102	102.1
27	"	"	101.3	100.4	102.2	102	-	-	-	103	102.4	102.1	102	102
			101.4	101.4	102.1	101.4	-	-	-	102	101.3	101.3	102	102.2
28	"	"	9AM	10AM	11AM	12N	1PM	2PM	3PM	101.1	101.1	101.2	102.3	102.1
29	"	"	102.1	102	101.2	102	102	-	-	101.2	101.2	102	101.4	102.2
30	"	"	102.3	101.2	101.1	101.3	101.3	-	-	101.1	101.1	102.1	102.2	103.1
31	"	"	102.1	101.4	101.3	102	102	-	-	101.3	101.3	102	101.2	102.2
32	"	"	103	102	102	102	102	-	-	102.1	101.3	102	102	103
33	"	"	101.4	101.4	100	102.2	102.1	-	-	102.1	102.1	102.1	102.2	102.2
34	"	"	102.4	102	101.3	103	102.2	-	-	102.1	102.1	101.3	102.2	101.1
35	"	"	101.4	101.4	102	101	101.1	-	-	103.4	101.4	102	101.4	101.1
36	"	"	103	102.1	101	102.2	103.4	-	-	102.1	101	102.2	102	102.3
37	"	"	102	101.2	101.3	101.1	102	-	-	101.3	102	102.3	103	101
38	"	"	102.1	102	102	102.2	102.1	-	-	101.2	101.2	102	102	101.2
39	"	"	102.4	102	101.4	102.1	103	-	-	101.1	102	102.1	102.1	103
40	"	"	102.2	102.4	102.1	103	102.2	-	-	101.2	101.3	101.1	101.4	102.2
41	"	"	103	102.4	102.3	103.1	103.1	-	-	103	102	103	103	102.4
42	"	"	101.4	101.3	102	102.1	102.2	-	-	101.2	101.1	101.2	102	101.1
43	"	"	102	102	103	102	102.1	-	-	101.2	101	101.1	101.1	101.4
44	"	"	102.1	101.4	102	102.4	102	-	-	102.2	102.4	102.2	102.3	103
45	"	"	103	103	103.2	103.1	103	-	-	102.2	101	102.3	102.3	101.2
46	"	"	103	102.2	102.2	103	102.4	-	-	101.4	102.2	102	102	102.2
47	"	"	102.3	102.1	102.3	102.2	102.2	-	-	102	101.1	102.3	102.4	102.2
48	"	"	102.4	102.4	102	102.2	103	-	-	102.2	102.3	102.1	103	102.4
49	"	"	102.1	102.2	102.3	102.4	102.1	-	-	102.2	102.3	102.1	102	102.2
50	"	"	100.3	102	102.3	102.2	102.1	-	-	102	102	103	102.2	101.1
51	"	"	102	102.1	102.2	102.1	102.1	-	-	101	101.2	102.1	102.2	101.3
52	"	"	103.2	103	102.4	102.2	102	-	-	101.1	101	102	100.2	100.1
53	"	"	103.1	103	103	101	101.2	-	-	101	101	102	102	101.4
54	"	"	102	-	-	-	-	-	-	103.1	103.1	103.2	103.2	103
55	"	"	103	-	-	-	-	-	-	102	101.4	101.3	102.2	102.2
56	"	Nov. 24, 25,	8AM	-	12 N	2PM	5PM	10PM	12M	4AM	6AM	-	-	104
57	"	"	-	-	-	-	102.3	-	-	102.1	102.1	102.1	-	102.2
58	"	"	-	-	-	-	102	-	-	103.4	103.1	103.2	-	103.2
59	"	"	-	-	-	-	103.1	-	-	102.2	102.3	102.3	-	101.4
60	"	"	-	-	-	-	103	-	-	102.1	102.1	102.2	-	102.2
61	"	"	-	-	-	-	102.4	-	-	102	102	102.1	-	101.4
62	"	"	-	-	-	-	102.4	-	-	102.2	103	102.4	-	102.1
63	"	"	-	-	-	-	102.2	-	-	102.3	102	102	-	102.1
64	"	"	-	-	-	-	102.4	-	-	102	102	102.4	-	102.1
65	"	"	-	-	-	-	102.1	-	-	102	102	102.2	-	102
66	"	"	-	-	-	-	103	-	-	101.3	102.3	102.2	-	102.2
67	"	"	-	-	-	-	103.2	-	-	102.3	102.1	102.3	-	102



*Other Herds — Continued.*

TEMPERATURES AFTER INJECTION.												Result.	Post-mortem Lesions.
11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.	12 M.	
102	102	102	102	102	102.2	102	102	-	-	-	-	-	Released.
102	101	101.2	101.2	101.1	102.2	102.1	101.2	-	-	-	-	-	"
102	101.1	103	100.4	101.1	102	101.1	101.2	-	-	-	-	-	"
102	103.1	101.3	101	101.3	102.1	102	102	-	-	-	-	-	"
101.3	101.1	101.2	100.4	101.3	102.2	102.1	102.1	-	-	-	-	-	"
102	101.4	101.3	102.2	102	102.1	102.2	102	-	-	-	-	-	"
101.4	102	101	102	101.4	101.3	102	101.4	-	-	-	-	-	"
101.1	101	100.4	101.3	101.2	102.2	102.1	102	-	-	-	-	-	"
102	102.1	101.4	101.4	101	103	103	102	-	-	-	-	-	Retest.
103.2	102.4	102	101.4	101.2	102	-	-	-	-	-	-	-	"
102.1	102.1	101.2	102	101.1	102.1	-	-	-	-	-	-	-	Released.
102.4	103.4	102	101	102	102.2	-	-	-	-	-	-	-	Retest.
101.2	102	101.1	101.4	101.2	102	-	-	-	-	-	-	-	Released.
102	102	102.1	102	101.3	102.3	-	-	-	-	-	-	-	"
102	101.3	101.2	101	101.2	101.4	-	-	-	-	-	-	-	"
101.1	101.2	101.2	101.2	101.2	102	-	-	-	-	-	-	-	"
102.1	101.2	102	101.3	101.4	102	-	-	-	-	-	-	-	"
101.4	101.2	102	100.3	102	102	-	-	-	-	-	-	-	"
102.4	102.3	102.1	102	101.2	102	-	-	-	-	-	-	-	Retest.
101.4	101.3	101.4	101	101.2	100.4	-	-	-	-	-	-	-	Released.
102.1	101.4	102.1	102.1	102	101.4	-	-	-	-	-	-	-	"
102.4	101.4	101.1	102.1	102	101.3	-	-	-	-	-	-	-	"
102	102	101.3	101.1	103	102	-	-	-	-	-	-	-	"
101.4	102	101.2	101.2	101	101.4	-	-	-	-	-	-	-	"
102.1	102	101.4	100.4	102	102	-	-	-	-	-	-	-	"
102	101.4	102.1	101.3	102	102	-	-	-	-	-	-	-	"
102	102	102	102	102.1	101.4	-	-	-	-	-	-	-	"
												"	28
102.3	102	102.1	102	102	102	-	-	-	-	-	-		29
102	101.1	101.2	101.2	101.4	102.1	-	-	-	-	-	-		30
102.2	102	102	101.1	102	102.1	-	-	-	-	-	-		31
102.1	101.4	102	101.3	101.3	102.4	-	-	-	-	-	-		32
102	102.1	102.1	102	102.3	102.2	-	-	-	-	-	-		33
102.2	101.4	102	102.3	102.3	103	-	-	-	-	-	-		34
102	102.2	103	102	101	101.2	-	-	-	-	-	-		35
102	102.3	102.1	102.1	101.4	102	-	-	-	-	-	-		36
103	102.4	102.2	102	102	102.1	-	-	-	-	-	-		37
101.2	101.4	102	101.4	100.4	101.2	-	-	-	-	-	-		38
102	102.4	102	102	101.4	102.1	-	-	-	-	-	-		39
102.3	102.4	102.4	103.1	103	103	-	-	-	-	-	-		40
102	102	101.2	101.4	101.2	101.4	-	-	-	-	-	-		41
103	103	102.2	102.4	103	103.1	-	-	-	-	-	-		42
101.2	101.2	101	101.4	101.2	101	-	-	-	-	-	-		43
102.1	103	101.3	102	102.4	102.1	-	-	-	-	-	-		44
103.1	102.2	103.2	103.1	102	102.1	-	-	-	-	-	-		45
103.2	102	102.2	102.4	103.1	103.1	-	-	-	-	-	-		46
102.3	102	103	102.1	103	102.4	-	-	-	-	-	-		47
101.3	101.3	102	102	102.4	101.3	-	-	-	-	-	-		48
102.2	102.2	102.4	103	102.1	102.4	-	-	-	-	-	-		49
102.2	102.1	102.1	102.2	103	102.2	-	-	-	-	-	-		50
101.2	102	102.4	102.2	102.1	102.2	-	-	-	-	-	-		51
102	103.1	103.4	102	102.4	102.3	-	-	-	-	-	-		52
101.1	101.2	102	102	102	102	-	-	-	-	-	-		53
102.1	102.1	102	101.3	102	102	-	-	-	-	-	-		54
102.4	103	103.1	103.1	103.1	103	-	-	-	-	-	-		55
102.2	103	103.1	103	102.2	-	-	-	-	-	-	-		56
												"	57
-	102.3	-	102.4	-	-	-	-	-	-	-	-		58
-	102	-	102.1	-	-	-	-	-	-	-	-		59
-	102.3	-	102.1	-	-	-	-	-	-	-	-		60
-	101.4	-	101.3	-	-	-	-	-	-	-	-		61
-	102.2	-	102	-	-	-	-	-	-	-	-		62
-	102.1	-	102.1	-	-	-	-	-	-	-	-		63
-	102.3	-	102	-	-	-	-	-	-	-	-		64
-	102	-	102	-	-	-	-	-	-	-	-		65
-	101.3	-	101.4	-	-	-	-	-	-	-	-		66
-	103	-	102.3	-	-	-	-	-	-	-	-		67
-	103	-	101.4	-	-	-	-	-	-	-	-		68
-	102	-	102	-	-	-	-	-	-	-	-		69

*Other Herds — Concluded.*

	COUNTY.	Date.	TEMPERATURES BEFORE INJECTION.							TEMPERATURES AFTER INJECTION.				
			8 A.M.	10 A.M.	12 N.	2 P.M.	6 P.M.	10 P.M.	12 M.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.
1	Middlesex,	Nov. 24, 25,					5 PM			4 AM	6 AM			
2	"	"	-	-	-	-	103.1	-	-	103	102.3	102.2	-	102.2
3	"	"	-	-	-	-	102.3	-	-	101.4	102.2	102.3	-	102.1
4	"	"	-	-	-	-	103.1	-	-	102	102.1	102	-	102.3
5	"	"	-	-	-	-	103.3	-	-	104	104	103.1	-	102.4
6	"	"	-	-	-	-	103.1	-	-	103	102.2	103.3	-	103.2
7	"	"	-	-	-	-	101.3	-	-	101.4	101.1	101.2	-	101.2
8	"	"	-	-	-	-	103	-	-	102.4	102.2	102.3	-	102.1
9	"	"	-	-	-	-	102	-	-	101.4	103	102.1	-	102.1
10	"	"	-	-	-	-	101.3	-	-	101	102	102.3	-	102.3
11	"	"	-	-	-	-	102.4	-	-	102	102.2	102.3	-	102.3
			-	-	-	-	103	-	-	102.3	103	103.3	-	103.3
12	"	Dec. 19, 20,	-	-	-	5 PM				5 AM				
13	"	"	-	-	-	103.3	-	-	-	101.2	102	-	102	-
14	"	"	-	-	-	101.1	-	-	-	101	101.4	-	102	-
15	"	"	-	-	-	102	-	-	-	101.3	102.2	-	103	-
16	"	"	-	-	-	102.3	-	-	-	103	102.2	-	103	-
17	"	"	-	-	-	103.3	-	-	-	102.3	102.2	-	102.3	-
18	"	"	-	-	-	102.4	-	-	-	102.2	102	-	102.3	-
19	"	"	-	-	-	102.2	-	-	-	101.2	101.4	-	102.2	-
20	"	"	-	-	-	102.2	-	-	-	101.3	102.1	-	102.2	-
21	"	"	-	-	-	101.3	-	-	-	101.2	101.4	-	102	-
22	"	"	-	-	-	101.4	-	-	-	101.2	101.4	-	101.4	-
23	"	"	-	-	-	101.1	-	-	-	101.2	102	-	102	-
24	"	"	-	-	-	101.3	-	-	-	101.3	102	-	102	-
25	"	"	-	-	-	102.1	-	-	-	101	102.2	-	102.3	-
26	"	"	-	-	-	101.2	-	-	-	101	102	-	102.2	-
27	"	"	-	-	-	101.2	-	-	-	101.3	102.1	-	102	-
28	"	"	-	-	-	101	-	-	-	101	102.3	-	102	-
29	"	"	-	-	-	101.3	-	-	-	101.1	102.3	-	103	-
30	"	"	-	-	-	102.2	-	-	-	102	102.4	-	102.3	-
31	"	"	-	-	-	102	-	-	-	101.2	101.4	-	101.4	-
32	"	"	-	-	-	100.3	-	-	-	102.4	102	-	102.1	-
33	"	"	-	-	-	102.1	-	-	-	102	102.3	-	102.3	-
34	"	"	-	-	-	101.2	-	-	-	102	102.3	-	102.2	-
35	"	"	-	-	-	101.4	-	-	-	102	103	-	102.2	-
36	"	"	-	-	-	100.3	-	-	-	102.1	102.4	-	102.2	-
37	"	"	-	-	-	101.2	-	-	-	102	102.2	-	102.3	-
38	"	"	-	-	-	101.2	-	-	-	102.1	102.1	-	103.3	-
			-	-	-	102.1	-	-	-	102.1	102.2	-	102.2	-
39	"	Nov. 9,	-	-	-	6 PM	8 PM	101	-	-	-	101.4	-	-
40	"	"	-	-	-	-	-	101.2	-	-	-	101.3	-	102
41	"	"	-	-	-	-	101	-	-	-	-	-	101.2	-
42	"	"	-	-	-	-	100.3	-	-	-	-	-	101.1	-
43	"	"	-	-	-	100	-	-	-	-	101.4	-	-	101.2







*Brighton — Continued.*

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.												Result.	Post-mortem Lesions.							
	Date.	Hour.	Tem- per- ature.	5 A.M.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.			5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.	12 M.
Brighton,	Nov. 20, 21,	6 P.M.	101.4	101.4	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.2	101.2	102	103								Released.	
"	"	"	101.1	101.4	101.4	102.4	102.4	102.3	102.3	103.2	102.1	102.1	102.1	102	103								"	
"	"	"	101.4	101.4	101.4	102.4	102.4	102.3	102.3	103.2	103.3	103.3	103.3	103.3	103								"	
"	"	"	101.2	101.3	101.3	101.3	101.3	101.3	101.4	101.4	101.4	101.4	101.4	101.4	101.4								"	
"	"	"	101.1	101.2	101.2	101.3	101.3	101.3	101.3	101.2	101.2	101.2	101.2	101.2	101.2								"	
"	"	"	101.1	101.3	101.3	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2								"	
"	"	"	102	101.3	101.3	101.3	101.3	101.3	101.3	101.4	101.4	101.4	101.4	101.4	101.4								"	
"	"	"	101	102	101.4	101.4	102.4	102.4	102	101.4	101.4	101.4	101.4	101.4	101.4								"	
"	"	"	101.4	103.4	101.4	102.4	102.4	102.2	102	101.3	101.3	101.3	101.3	101.3	101.3								"	
"	"	"	101.3	101	101.3	101	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3								"	
"	"	"	101.1	101.3	101.3	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2								"	
"	"	"	102	101.1	101.1	101.1	101.1	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4								"	
"	"	"	101.1	101.3	101.3	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2								"	
"	"	"	101.2	101.2	101.2	101.3	101.3	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2								"	
"	"	"	103.2	101.3	101.3	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4								"	
"	"	"	132	101	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3								"	
"	"	"	101.4	101.1	101.1	101.3	101.3	101.4	102	101.3	101.4	101.4	101.4	101.4	101.4								"	
"	"	"	102.2	101.4	102.1	102.1	102.3	101.3	102.2	102.2	102.4	102.4	102.4	102.4	102.4								"	
"	"	"	102.1	102.1	102.1	102.1	102.3	101.3	102.2	102.2	102.3	102.3	102.3	102.3	102.3								"	
"	"	"	101.4	101.2	101.2	101.1	101.1	101.4	101.4	101.2	101.1	101.1	101.1	101.1	101.1								"	
"	"	"	102.4	102	102.4	102.2	102.2	102.3	102.2	102	102.2	102.2	102.2	102	102								"	
"	"	"	100.4	101	103	103.2	103.2	103.3	103.4	103.4	103.2	103.2	103.2	103.2	103.2								Condemned.	
"	"	"	103.1	101.3	101.3	102	102	102	102	102	102	102	102	102	102								Released.	
"	"	"	100.3	101.2	100.3	100.3	100.3	102	101	101	101	101.1	101.1	101.1	101.1								"	
"	"	"	102	101.3	101.3	101.1	101.1	102	102.4	101.3	101.3	101.3	101.3	101.3	101.3								"	
"	Nov. 27, 28,	"	101	100	102	102	102	102	102.4	102.4	102.1	102.1	102.1	102.1	102.1								"	
"	"	"	102.4	102	102.4	102.3	102.3	103	103	103	102.1	102.1	102.1	102.1	102.1								"	
"	"	"	101	101.1	101.1	102.2	102.2	102.4	102.4	102.1	102.1	102.1	102.1	102.1	102.1								"	
"	"	"	101	104	103	103	103.4	104.4	103.3	103.3	103.3	103.3	103.3	103.3	103.3								"	
"	"	"	101.2	102.3	102.3	103	103	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2								"	
"	"	"	101	102.3	102.3	103.2	103.2	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3								"	
"	"	"	101.2	101	101	102	102	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3								"	
"	"	"	99.2	103	103	102	102	100.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4								"	
"	"	"	100.1	101.2	102.1	102.1	102.1	102	102.1	102.1	102.1	102.1	102.1	102.1	102.1								"	
"	"	"	100.4	102.2	102.2	102	102	101.3	102.1	102.1	102.1	102.1	102.1	102.1	102.1								"	

[illegible]

## Brighton — Continued.

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.														Result.	Post-mortem Lesions.				
	Date.	Hour.	Temperature.	5 A.M.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.			7 P.M.	8 P.M.	9 P.M.	10 P.M.
Brighton,	Nov. 27, 28,	6 P.M.	102.3	102.4	102.3	102.3	102.3	103.2	103.3	103	103	103	103.1	103.2	103.2	101.2	101.2	101.2					Released.
"	"	"	103	103.3	103.3	103.2	103.2	103.2	103.3	103.3	103.3	103.1	103.1	103.2	103.2	103.2	103.2	101.2					"
"	"	"	102.1	102.2	102.2	101.4	102.2	102.2	102.2	102.2	102.2	102.2	102.3	102.4	102.4	102.4	102.4	101.2					"
"	"	"	102	102	102.2	101.3	102.2	102.2	102.2	102.2	102.2	102.2	102.3	102.4	102.4	102.4	102.4	102.4					"
"	"	"	101	101.3	101.3	101.4	102.2	102.2	102.2	102.2	102.2	102.2	102.1	102.1	102.1	102.1	102.1	102.1					"
"	"	"	102.2	102.2	102.2	102.4	102.4	102.4	102.4	102.3	102.3	102.3	102.1	102.1	102.1	102.1	102.1	102.1					"
"	"	"	102.1	102	102.3	102.3	102.3	102.3	102.3	102.1	102.1	102.1	101.2	102.4	102.4	102.4	102.4	102.4					"
"	"	"	102	102	102	102	102	102	102	102	102	102	102	102.3	102.3	102.3	102.3	101.2					"
"	"	"	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2					Condemned.
"	"	"	102	103.1	103.1	103	102.4	102.4	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	101.3					Released.
"	"	"	101.3	101.4	101.4	102.1	102.1	102.1	101.2	101.2	101.1	101.1	101.2	101.3	101.3	101.3	101.3	101.3					"
"	"	"	101.4	101.3	101.3	102.2	102.2	102.2	102.3	102.3	102.3	102.3	102.3	102.2	102.2	102.2	102.2	101.3					Condemned.
"	"	"	101.2	102.1	102.1	102.4	102.4	102.4	102.4	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3	102.3					Released.
"	"	"	101	101.3	101.3	102	102	102	102	102	102	102	102	102	102	102	102	101.3					"
"	"	"	104	102.1	102.1	103.1	103	103	103	103	103	103	103	103.1	103.1	103.1	103.1	101.3					Condemned.
"	"	"	101.2	101.3	101.3	102	102	102	102	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2					Released.
"	"	"	102	102	102	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4					Refect.
"	"	"	101.3	103	103	104	104	104	104	104.1	104.1	104.1	104.1	104	104	104	104	104					Released.
"	"	"	101.1	101.2	101.2	101.4	104.3	104.3	105.2	105.2	105.4	105.4	105.4	104	104	104	104	104					Condemned.
"	"	"	102	103.3	103.3	103.4	103	103	105.2	105.2	105	105	104	104	104	104	104	104					Released.
"	"	"	100.1	104.2	104.2	106	106.1	106.1	106.1	106.1	106.1	106.1	106.1	104.4	104.4	104.4	104.2	104.2					Condemned.
"	"	"	101.4	102	102	106	106.1	106.1	106.1	106.1	106.1	106.1	106.1	104.4	104.4	104.4	104.4	104.4					Released.
"	"	"	101	103	103	104.2	105.4	105.4	105.4	105.2	105	105	104	104	104	104	104	104					Condemned.
"	"	"	101.3	104.1	104.1	104.2	104.3	104.3	103.4	103.4	102.4	102.4	102.4	103.2	103.2	103.2	103.2	103.2					E
"	"	"	101.4	101	101	101.3	100.3	100.3	100.3	101.3	101	101	101	101	101	101	101	101					D
"	"	"	101.2	101	101	101	101	101	101	101.3	101.2	101.2	101.2	101.1	101.1	101.1	101.1	101.1					B
"	"	"	100.1	102.1	102.1	105.2	106	106	106	106	106	106	106.1	106.4	106.4	106.4	106.4	106.4					Condemned.
"	"	"	102	100.3	100.3	101.1	101.1	101.1	101.1	100.3	101.2	101.2	101.2	100.3	100.3	100.3	100.3	100.3					Released.
"	"	"	102.3	102.2	102.2	102.2	102.2	102.2	101.4	101.4	101.4	101.4	101.4	100.4	100.4	100.4	100.4	100.4					"
"	"	"	101.3	105.4	105.4	106.3	105.2	105.2	105.2	103	102.4	102.4	102.4	102	102	102	102	102					Condemned.
"	"	"	102	100.4	100.4	102.4	101.3	101.3	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4					G





*Brighton* — Continued.

[illegible]

[illegible]

<sup>3</sup> Retest; condemned on physical examination.

<sup>2</sup> Temperature after injection, 11.30 A.M., 101.2.

<sup>1</sup> Held for retest.









*Brighton* — Continued.

[illegible]







101.1	101.2	101.3	101.4	101.5	101.6	101.7	101.8	101.9	101.10	101.11	101.12	101.13	101.14	101.15	101.16	101.17	101.18	101.19	101.20	101.21	101.22	101.23	101.24	101.25	101.26	101.27	101.28	101.29	101.30	101.31	101.32	101.33	101.34	101.35	101.36	101.37	101.38	101.39	101.40	101.41	101.42	101.43	101.44	101.45	101.46	101.47	101.48	101.49	101.50	101.51	101.52	101.53	101.54	101.55	101.56	101.57	101.58	101.59	101.60	101.61	101.62	101.63	101.64	101.65	101.66	101.67	101.68	101.69	101.70	101.71	101.72	101.73	101.74	101.75	101.76	101.77	101.78	101.79	101.80	101.81	101.82	101.83	101.84	101.85	101.86	101.87	101.88	101.89	101.90	101.91	101.92	101.93	101.94	101.95	101.96	101.97	101.98	101.99	102.00	102.01	102.02	102.03	102.04	102.05	102.06	102.07	102.08	102.09	102.10	102.11	102.12	102.13	102.14	102.15	102.16	102.17	102.18	102.19	102.20	102.21	102.22	102.23	102.24	102.25	102.26	102.27	102.28	102.29	102.30	102.31	102.32	102.33	102.34	102.35	102.36	102.37	102.38	102.39	102.40	102.41	102.42	102.43	102.44	102.45	102.46	102.47	102.48	102.49	102.50	102.51	102.52	102.53	102.54	102.55	102.56	102.57	102.58	102.59	102.60	102.61	102.62	102.63	102.64	102.65	102.66	102.67	102.68	102.69	102.70	102.71	102.72	102.73	102.74	102.75	102.76	102.77	102.78	102.79	102.80	102.81	102.82	102.83	102.84	102.85	102.86	102.87	102.88	102.89	102.90	102.91	102.92	102.93	102.94	102.95	102.96	102.97	102.98	102.99	103.00	103.01	103.02	103.03	103.04	103.05	103.06	103.07	103.08	103.09	103.10	103.11	103.12	103.13	103.14	103.15	103.16	103.17	103.18	103.19	103.20	103.21	103.22	103.23	103.24	103.25	103.26	103.27	103.28	103.29	103.30	103.31	103.32	103.33	103.34	103.35	103.36	103.37	103.38	103.39	103.40	103.41	103.42	103.43	103.44	103.45	103.46	103.47	103.48	103.49	103.50	103.51	103.52	103.53	103.54	103.55	103.56	103.57	103.58	103.59	103.60	103.61	103.62	103.63	103.64	103.65	103.66	103.67	103.68	103.69	103.70	103.71	103.72	103.73	103.74	103.75	103.76	103.77	103.78	103.79	103.80	103.81	103.82	103.83	103.84	103.85	103.86	103.87	103.88	103.89	103.90	103.91	103.92	103.93	103.94	103.95	103.96	103.97	103.98	103.99	104.00	104.01	104.02	104.03	104.04	104.05	104.06	104.07	104.08	104.09	104.10	104.11	104.12	104.13	104.14	104.15	104.16	104.17	104.18	104.19	104.20	104.21	104.22	104.23	104.24	104.25	104.26	104.27	104.28	104.29	104.30	104.31	104.32	104.33	104.34	104.35	104.36	104.37	104.38	104.39	104.40	104.41	104.42	104.43	104.44	104.45	104.46	104.47	104.48	104.49	104.50	104.51	104.52	104.53	104.54	104.55	104.56	104.57	104.58	104.59	104.60	104.61	104.62	104.63	104.64	104.65	104.66	104.67	104.68	104.69	104.70	104.71	104.72	104
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*Brighton — Continued.*

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.												Result.	Post-mortem Lesions.								
	Date.	Hour.	Tem- per- ature.	5 A.M.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.			5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.	12 M.	
Brighton,	Dec. 18, 19,	6 P.M.	101.4	103.2							101.3		101.3	101.3		101.1	102.2		103	102.1	103	102		Released.	
"	"	"	101.3	103							105.2		104.1	104.1		103	103							Condemned.	
"	"	"	101.2	102.4							102.1		102.1	102.1		102.2	102		104	104.2	104.3	104.1		Released.	
"	"	"	102.1	100.4							101.2		101.2	101.2		101.1	101							"	
"	"	"	102	100.2							101.2		101.2	101.2		101 101.4		101.3						"	
"	"	"	102	100.1							101.4		101.4	101.4		102	102.2		102					"	
"	"	"	101.4	101							100.4		100.4	100.4		101.2	101.3							"	
"	"	"	101.1	100.3							101.2		101.2	101.2		101.4	101.3							"	
"	"	"	101.4	101							101.2		101.2	101.2		101.1	101.1							"	
"	"	"	101.3	102							102		102	102		102 102								"	
"	"	"	102	100							103.4		103.4	103.4		105.1	105		105.3	105.2	106	103.4	103.4	Condemned.	
"	"	"	101.3	101							104.1		104.1	104.1		105.3	106		106	104.3	103.4			Released.	
"	"	"	101.3	101							101.3		101.3	101.3		102.1	101.4							"	
"	"	"	102	100.2							101.2		101.2	101.2		102.3	101.4		102.2					"	
"	"	"	101	101.1							102		102	102		102.2	102.1							"	
"	"	"	102.2	101.2							101.2		101.2	101.2		102	102							"	
"	"	"	102.3	101.3							100.4		100.4	100.4		101.1	101.3							"	
"	"	"	102.4	101.4							102		102	102		101.3	102							"	
"	"	"	101.1	101.1							101.3		101.3	101.3		102	102.1							"	
"	"	"	101.2	101							101		101	101		101.1	101							"	
"	"	"	101.4	101							101.1		101.1	101.1		101.2	101.2							"	
"	"	"	101.2	101							102		102	102		101.1	102.3							"	
"	"	"	101.1	102.3							102.4		102.4	102.4		102.1	103		103	102.1				"	
"	"	"	101.2	101.3							101.3		101.4	101.3		102.1								"	
"	"	"	101.2	101.3							101.1		102.1	102.1		102.3								"	
"	"	"	101.4	101							101.2		101.2	101.2		101.2								"	
"	"	"	101.2	101							101.1		101.1	101.1		102								"	
"	"	"	102.1	101							101.1		101.1	101.1		102								"	
"	"	"	102.1	101							101.1		101.1	101.1		102								"	
"	"	{ 6 P.M. 10 P.M.	103.4	100.3							103.4		104.4	103.1		103.3			103	103.1	103			Retest.	
"	"		102.4	100.3							103.4		104.4	104.4		104.4									



*Brighton — Concluded.*

TOWN.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.														Result.	Post-mortem Lesions.				
	Date.	Hour.	Temperature	5 A.M.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.	12 M.	
Brighton,	Dec. 25, 26,	6 P.M.	99.3	99.4	99.4	99.4	99.4	98.3	98.3	101	—	99.2	—	101	101.2	100	103.2	103.1	—	—	—	—	Released.
"	"	"	101.2	104.4	104	104	104.3	104.3	104.3	104.3	103.1	103.1	103.1	103	102.4	102.2	103	103.2	103.1	—	—	—	Condemed.
"	"	"	101.2	100	102.1	102.1	102.1	102.2	102.1	102.1	102.2	102.2	102.2	102	102.2	102.1	101	102.2	103.1	—	—	—	Released.
"	"	"	101.3	100.1	102.1	102.1	102.2	102.2	102.1	102.1	102.2	102.2	102.2	101.2	101.2	100.3	101.2	101.2	101.2	—	—	—	"
"	"	"	101	99.2	101.3	101.3	101.4	101.4	101.3	102.1	101.3	101.3	101.3	100	99.4	101.3	101.3	101.3	101.3	—	—	—	"
"	"	"	99.4	99.1	99.3	99.3	100.4	100.1	100.1	99.3	100	100	100	99.4	101.3	101.3	101.3	101.3	101.3	—	—	—	"
"	"	"	101.4	101	100.4	100.4	100.4	100.4	100.4	100.4	101.1	101.1	101.1	101.1	101.3	101.3	101.3	101.3	101.3	—	—	—	"
"	"	"	102.4	101	101.2	101.2	102	102	102	100.2	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	—	—	—	"
"	"	"	100.2	99.2	99.2	99.2	101.1	99.3	101.1	100.2	100.2	100.4	100.4	101.1	101.1	101.1	101.1	101.1	101.1	—	—	—	"
"	"	"	100.2	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	—	—	—	"
"	"	"	102.3	105.3	105.3	105.3	105	105	105	105.2	104.4	104.4	104.4	105.2	105.2	105.2	104	104.3	104.3	105.2	105.2	105.2	Condemed.
"	"	"	100	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	—	—	—	"
"	"	"	103.1	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.1	101.1	101.1	101.1	101.1	101.1	—	—	—	Released.
"	"	"	102	101.2	102.1	102.1	102.1	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	—	—	—	"
"	"	"	102.3	100	101.1	101.1	101.1	101.1	101.1	101.4	101.4	101.4	101.4	100	99.2	101.3	101.3	101.3	101.3	—	—	—	"
"	"	"	103.1	103.1	103.1	103.1	103.1	103.1	103.1	101.4	101.4	101.4	101.4	101.4	101.4	101.1	101.1	101.1	101.1	—	—	—	"
"	"	"	102.3	101.4	101.4	101.4	101.4	101.4	101.4	102.1	102.1	102.2	102.2	102	102.2	102.2	102.2	102.2	102.2	—	—	—	"
"	"	"	101.2	100.4	101	101	100.4	100.4	100.4	102	102	102	102	101	100.4	101.1	101.1	101.1	101.1	—	—	—	"
"	"	"	102.1	103.3	103.3	103.3	103.3	103.3	103.3	101.4	101.4	101.4	101.4	101	101.3	101.3	101.3	101.3	101.3	—	—	—	"
"	"	"	103	101.2	100.2	100.2	100.2	100.4	100.4	101	101	100.2	100.2	101	101	101	101	101	101	—	—	—	"
"	"	"	101.4	102.3	103.3	103.3	103.3	103.3	103.3	102.3	102.3	102.3	102.3	102.3	102	102	102	102	102	—	—	—	"
"	"	"	102.2	101.2	101.2	101.2	101.2	101.3	101.3	102.3	102.3	102.3	102.3	102.3	101.4	101.4	101.4	101.4	101.4	—	—	—	"
"	"	"	101.3	100	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	102	102	102	102	102	102	—	—	—	"
"	"	"	102.1	102.3	103.1	103.1	103.1	102.1	102.1	102	102	102	102	102	101.4	101.4	101.4	101.4	101.4	—	—	—	"
"	"	"	101.3	103.1	103.1	103.1	103.1	102.1	102.1	102	102	102	102	102	101.4	101.4	101.4	101.4	101.4	—	—	—	"
"	"	"	102.2	102.1	102.1	102.1	102.1	102.4	102.4	102.1	102.1	102.1	102.1	102	102	102	102	102	102	—	—	—	"
"	"	"	100.4	100.2	102	102	102	101.4	101.4	102.1	102.1	102.1	102.1	101	101.1	101.1	101.1	101.1	101.1	—	—	—	"
"	"	"	104.1	104	103	103	103	102.4	102.4	103.3	103.3	103	103	101	101	104.1	104.4	104.4	104.4	—	—	—	Released.
"	"	"	101.3	101.3	102	102	102	101.3	101.3	103.3	103.3	103	103	101	101	101	101	101	101	—	—	—	"
"	"	"	101.4	99.2	99.4	99.4	100	100	100	99.1	100.1	100.1	100.1	100.1	100.1	100.1	100.1	100.1	100.1	—	—	—	"
"	"	"	103.1	103.1	102.3	102.3	103.1	103.1	103.1	103	103.1	103.4	103.4	100.3	100.3	100.3	100.3	100.3	100.3	—	—	—	"

[illegible]

## WATERTOWN.

[illegible]









## Watertown — Continued.

[illegible]

<sup>1</sup> Retested Dec. 18, 1894, and then released.



[illegible]





[illegible]



[illegible]













1 Held over one week.

## Waterlown — Continued.

[illegible]



## Watertown — Continued.

STALL.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.																	Result.	Post-mortem Lesions.	
	Date.	Hour.	Tem- per- ature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.			12 M.
											1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.			12 M.
Stalls B, C, D,	Dec. 25, '26,	6 P.M.	102	101	102	101.3	101.4	101.4	101.4	101.4	101.4	101.4	101.1	101.1	101.2	101	100.2	102	102	101.1	101.2	101.2	Released.
"	"	"	100.2	101.2	101.2	101.3	100.3	100.3	100.3	100	100	100.1	100.1	100.1	100.2	100.1	100	101	101	100.2	100.2	100.2	"
"	"	"	101.1	102	101.3	101.3	101.2	101.2	101.2	101	101	101.1	101.1	101.1	101.1	101	101	101	101.3	101.1	101.1	101.1	"
"	"	"	101.4	101	101.1	101.1	101.2	101.2	101.2	101.1	101.1	101.1	101.1	101.1	101.2	101.1	101	101	102	101.1	101.1	101.1	"
"	"	"	101.3	104	104.2	102	105.2	105.2	105	105	105	104	104	104	103.3	103	103	103	103.3	103.3	103.3	103	-1
"	"	"	101.3	100.3	100.3	102	101.2	101.2	102.4	102.4	102.4	102.4	102.4	102.4	103.1	103.1	103	103	103.1	103.1	103.1	Released.	
"	"	"	101	101.2	101.1	101.1	101.1	101.1	101	101	101	101.2	101.2	101.1	101.1	101.1	101	101	101.1	101.1	101.1	101.1	"
"	"	"	101.2	101.1	101.1	101.4	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	"
"	"	"	101	102.2	102.2	102.1	101.3	101.3	101.4	101.4	101.4	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	101.3	"
"	"	"	100.4	100	100	101.2	100.2	100.2	100	100	100	100.2	100	100	100.2	100	100	100	101	101	101	101	"
"	"	"	101.1	102.1	102.1	102.1	101.4	101.4	101.3	101.3	101.3	101.2	101.2	101.2	102	102	102	102	102	102	102	102	"
"	"	"	102	102.1	102.1	102.1	102.1	102.1	101.3	101.3	101.3	102.1	102.1	102.1	101	101	101	101	101	101	101	101	"
"	"	"	101.2	101.3	101.3	102.3	102.3	102.3	101.3	101.3	101.3	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	"
"	"	"	101.3	102	102.1	102.2	102.2	102.2	103.2	103.2	103.2	102.4	102.4	102.4	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	"
"	"	"	103.2	102.8	102.8	102.3	103.2	103.2	103.2	103.2	103.2	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	Released.
Stalls N, E, H, I,	"	"	100.3	103.4	103.4	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.4	103.2	103	103	103.2	103.2	103.2	103.2	Released.
"	"	"	102	101.4	102	102	101.3	101.3	101.3	101.2	101.2	101.2	101.2	101.2	102	102	102	102	102	102	102	102	"
"	"	"	102.2	102.1	102	101.3	101.3	101.4	101.4	101.4	101.4	101.3	101.3	101.3	102.4	102	102	102	102	102	102	102	"
"	"	"	101.2	101.3	101.3	101.3	101.3	101.4	101.4	101.4	101.3	101.3	101.3	101.3	101.1	100.4	100.4	100.4	100.4	100.4	100.4	100.4	"
"	"	"	102.4	101.4	101.2	102.4	102	102	102.1	102.1	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	"
"	"	"	102.3	101.2	101.2	102	102.4	102	102	102	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	"
"	"	"	101.1	101.1	101.1	102.1	101.4	101.4	101.4	102	102	102	102	102	102.1	100.4	100.4	100.4	100.4	100.4	100.4	100.4	"
"	"	"	102.2	101.1	101.1	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	"
"	"	"	103	100.4	100.4	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	101	"
"	"	"	101.3	100.4	100.4	101	101	101	101	101	101	101	101	101	101.2	101.2	101.2	101.2	101.2	101.2	101.2	101.2	"
"	"	"	102	102.3	102.3	102	102	102	102	102	102	102	102	102	102	101	101	101	101	101	101	101	"

[illegible]

1 Held for retest.









[illegible]









## Nantucket — Continued.

OWNER.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.																	Result.	Post-mortem Lesions.		
	Date.	Hour.	Tem- per- ature.	5 AM	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.			10 P.M.	12 M.
Harry Dunham, "	Dec 3, 4,	9 P. M.	100.2			102.3		103.2			102.4		102.4		102									Released.
" "	" "	" "	102.4			102.3				103	103		102.4		101.8									"
" "	" "	" "	100.1			101.3		102.2			102.1		102.1		101.3									"
Claradon Chapel,	" "	" "	100			101.3		102.2			102.1		102.1		101.3									"
" "	" "	" "	100.2			100.4		101.2			101.4		101.4		101.1									"
" "	" "	" "	100			101		102.2			102		102		102.2									"
" "	" "	" "	100.3			102		102.3			102.3		102.1		102									"
" "	" "	" "	101.2			101.3		102.1			102.1		102		101.4									"
" "	" "	" "	100.3			101.1		102			102.1		101.4		101.3									"
" "	" "	" "	100.3			101.1		102			102.2		102.2		102.1									"
" "	" "	" "	102			101.2		102.2			101.2		101		102.2									"
" "	" "	" "	99.4			101.1		101.3			101.3		101.1		101									"
" "	" "	" "	102.2			102.3		103.3			103.2		103		103.1									"
" "	" "	" "	101			101.3		102.1			102.1		102.1		102.1									"
" "	" "	" "	102.2			102.1		102.2			102.2		102		102.1									"
D. W. Burgess, "	Dec 4, 5,	4 P.M.	101	101.3	102	102.1	101.4	101.4	101.3	101.3	101.3	101.1	101.1	101.2	102.1	102.1	101.4	101.2	101.2	101.2	101.3	101.3	101.2	"
" "	" "	" "	100	101.2	102.1	101.4	101	100	100	100	100.1	100.1	100.1	100.1	100.1	100.1	100.1	100.1	100.1	100.1	100.1	100.1	100.1	"
" "	" "	" "	100.3	101.1	101.2	101.3	102	101.3	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	"
" "	" "	" "	102	101.1	102.1	101.3	101.1	101.2	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	"
" "	" "	" "	101.2	100	101.4	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	"
" "	" "	" "	101.2	102.1	102.1	102	102	102	102	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	"
" "	" "	" "	103.1	102.3	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	"
" "	" "	" "	102.1	102.2	103.2	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	"
" "	" "	" "	102.1	102.1	102.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	"
" "	" "	" "	101	102	101.1	101	101	101	101	101	101	100	100	100	100	100	100	100	100	100	100	100	100	"
Harrison Gardner,	" "	" "	100.3	102.1	103	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	102.4	"
J. M. Folger, Jr.,	" "	8 P.M.	99.3	101	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	"
" "	" "	" "	101.3			102.1		102.1		102.1	102.1		102.1		102.1		102.1		102.1		102.1	102.1	102.1	"
" "	" "	" "	99			101.2		101.2		101.2	101.2		101.2		101.2		101.2		101.2		101.2	101.2	101.2	"
" "	" "	" "	101.3			102.1		102.1		102.1	102.1		102.1		102.1		102.1		102.1		102.1	102.1	102.1	"
" "	" "	" "	100.1			101.4		101.4		101.4	101.4		101.4		101.4		101.4		101.4		101.4	101.4	101.4	"
" "	" "	" "	100.2			101.3		102.3		102.3	102.3		102.3		102.3		102.3		102.3		102.3	102.3	102.3	"



## Nantucket — Continued.

OWNER.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.												Result.	Post-mortem Lesions.					
	Date.	Hour.	Tem- per- ature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.	12 M.	
Lucy Backus,	Dec. 6, 7,	9 P.M.	102	3 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.	12 M.
"	"	"	101																			
"	"	"	102																			
"	"	"	102.2																			
"	"	"	101.4																			
"	"	"	100																			
"	"	"	100																			
E. C. Morey,	"	"	101.4																			
"	"	"	99.2																			
"	"	"	100.4																			
"	"	"	100																			
"	"	"	99.4																			
"	"	"	100																			
"	"	"	100																			
"	"	"	101																			
"	"	"	101.1																			
"	"	"	99.3																			
"	"	"	102																			
"	"	"	100.2																			
"	"	"	102																			
"	"	"	101																			
"	"	"	100.2																			
"	"	"	102																			
"	"	"	101																			
"	"	"	100.1																			
"	"	"	99																			
"	"	"	101.1																			
"	"	"	102																			
"	"	"	102																			
R. E. Burgess,	"	8 P.M.	102																			
"	"	"	102																			
"	"	"	102.3																			
"	"	"	102.2																			

Released.

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[illegible]

1 Killed at owner's request.

CATTLE COMMISSIONERS.

[Jan.

## Nantucket — Continued.

[illegible]



## Nantucket — Continued.

OWNER.	BEFORE INJECTION.			TEMPERATURES AFTER INJECTION.												Result.	Post-mortem Lesions.						
	Date.	Hour.	Tem- per- ature.	6 A.M.	7 A.M.	8 A.M.	9 A.M.	10 A.M.	11 A.M.	12 N.	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.			6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M.	12 M.
Frank Fisher,	Dec. 9, 10,	8 P.M.	100.4	101.2	101.2	102	102	102.2	102.2	102	102	102	101.2	101.2									Released.
" "	"	"	99	101	101.2	102	102	102.2	102.2	101.3	101	101	100.4	100.4									"
" "	"	"	99	101	101.1	101	101	101	101.3	101.3	100.4	100.4	100.4	100.4									"
" "	"	"	99	102	101.3	102	102	101.4	103	103	103.1	102	102	102									"
" "	"	"	100.3	101.3	101.3	102	102	102.4	103	103	102.2	102.2	102	102									"
" "	"	"	102	100.4	100.4	101.2	101.2	101.2	102.4	102.4	102.2	102.2	102	102									"
" "	"	"	101	102.1	102.1	102.3	102.3	102.3	102.4	102.4	102.2	102.2	101.4	101.4									"
" "	"	"	102	102	102	102.3	102.3	102.3	102.2	102.2	102.3	102.3	101.3	101.3									"
Joseph Lewis,	"	"	101.2	101.4	101.4	102	102	102.1	102	102	101.3	101.3	101.4	101.4									"
John Smith,	"	"	101.2	101	101	101.4	101.4	102	102	102	101.3	101.3	101.4	101.4									"
Joseph Grant,	"	"	100.1	100	100	101.3	101.3	102	102	102	101.3	101.3	101.3	101.3									"
A. Sylvia,	"	"	100.4	102	102	102	102	102.3	102.3	102.3	102	102	102.3	102.3									"
J. S. Rosa,	"	"	101.2	102	102	102	102	102.1	102.1	101.3	101.3	101.3	101.3	101.3									"
" "	"	"	100	102	102	102	102	101.4	101.4	101.3	101.3	101.3	101.3	101.3									"
" "	"	"	101.2	101.3	101.3	102	102	101.2	101.2	101.3	101.3	101.3	101.3	101.3									"
" "	"	"	101.1	102	102	102	102	102	102	102	101.3	101.3	101.4	101.4									"
" "	"	"	101.2	103	103	102.1	102.1	102.1	102.1	102.1	102.2	102.2	101.2	101.2									"
Geo. Sylvester,	"	"	101.2	101	101	101.4	101.4	102	102	102.1	102.1	102.1	101.2	101.2									"
Collen Small,	"	"	100.3	101	101	101.4	101.4	102	102	102.1	102.1	102.1	101.3	101.3									"
" "	"	"	101	102.1	102.1	102.1	102.1	102.2	102.2	102.1	102.1	101.3	101.3	101.3									"
" "	"	"	100	101.1	101.1	102.2	102.2	102.2	101.3	101.3	102.1	101.3	101.3	101.3									"
" "	"	"	100.3	101.4	101.4	102.3	102.3	102.3	101.3	101.3	102.1	101.3	101.3	101.3									"
" "	"	"	101.1	102.1	102.1	102.1	102.1	102.1	102.1	102.1	101.4	101.4	101.3	101.3									"
" "	"	"	101.2	102.1	102.1	102.1	102.1	102.1	102.1	102.1	101.3	101.3	101.4	101.4									"
" "	"	"	101	103.2	103.2	103.3	103.3	103.3	103	103	102.4	102.4	103	103									"
" "	"	"	100	102.2	102.2	103.1	103.1	103.1	103	103	102.1	102.1	101.4	101.4									"
" "	"	"	101.2	101.4	101.4	101.3	101.3	101.3	101.2	101.2	102.3	102.3	102	102									"
" "	"	"	101.3	101.1	101.1	101	101	100.3	100.3	100.3	100.1	100.1	101.1	101.1									"
W. A. Folger,	"	"	101.2	101.2	101.2	101.1	101.1	101.1	100.3	100.3	100.1	100.1	100.3	100.3									"
Wm. Nickerson,	"	"	101.1	102	102	102.1	102.1	102.1	102.3	102.3	103	103	102.1	102.1									"
Thos. Nickerson,	"	"	102.2	102	102	102.2	102.2	102.2	101.4	101.4	101.4	102.2	102.2	102.2									"
" "	"	"	101.1	102.2	102.2	102.2	102.2	102.2	102.1	102.1	102.2	102.2	102.2	102.2									"
J. L. Wheldon,	"	"	102.2	101.4	101.4	102.4	102.4	102.4	102.2	102.2	102.3	102.3	102.2	102.2									"
" "	"	"	102.3	102.3	102.3	102.1	102.1	103	103	103	104	103.4	103.4	103.4									"
" "	"	"	101.2	102.3	102.3	102.1	102.1	103.1	103.1	103.1	102.3	102.3	102.2	102.2									Retest. Released.
Chas. Raymon,	"	"	101.2	102.3	102.3	102.1	102.1	103.1	103.1	103.1	102.3	102.3	102.2	102.2									"

Retest.  
Released.

[illegible]















